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1996 COMMUNICATION SOURCE-BOOK™

EDITION 1

NEW! *This Edition*

- *100Base-T Switches & Hubs*
- *Internet Routers*
- *Dual Speed 10/100Mbps Ethernet NICs & Much More!*

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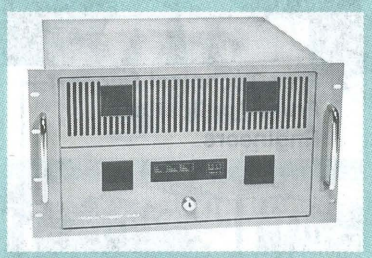
Preview of Key Products

LattisSwitch switches support standard 10Mbps IEEE 802.3 Ethernet, allowing for seamless integration into existing Ethernet environments. In addition, compliance with the IEEE 802.3u 100Base-T specification enables the LattisSwitch switches to support high-speed 100Mbps connections, delivering additional bandwidth for particularly demanding applications. The LattisSwitch family is fully integrated with the latest release of the Optivity network management system for complete port-level monitoring and control. Combined with Optivity's configuration switching capabilities, the LattisSwitch switches also contribute to a virtual networking solution that combines the benefits of both switched and shared-media technologies. (See page 10)



To minimize and prevent expensive network outages, users have turned to network vendors with a list of requirements. Network vendors have responded by offering equipment specially-designed to operate in demanding, mission-critical environments. And so like the respected leaders in the network industry, Industrial Computer Source has leveraged its decade of experience in designing and supplying industrial-grade personal computers to build the power-perfect network server. This recommended solution delivers the performance you expect and manages to virtually eliminate server downtime. (See page 50)

The DynaStar® 100 is a multi-tasking, multi-microprocessor platform that provides LAN connectivity over wide area networks (WAN). Its hardware and software modules simultaneously support multiple LAN interfaces, WAN interfaces, and LAN/WAN applications. (see pages 26-27)

Order Now!

A Quick Look at Ethernet

Ethernet was first developed by DEC, Intel and Xerox in 1973. Based on Carrier Sense Multiple Access with Collision Detection (CSMA/CD), Ethernet stations "listen" on the shared network cable prior to transmission. If stations attempt to transmit at the same time, a "collision" is detected—during which time, no station can transmit. Bad network cable or faulty equipment can also contribute to excessive collisions. With its relatively simple and direct medium access control, today's Ethernet is the choice for 70% of all network installations.

While 5 specifications share the CSMA/CD architecture, the media type (i.e.., cabling), media connector and perhaps most importantly, transmission speeds can differ.

The most popular choice for Ethernet is 10BaseT:

- The hub-based star configuration is more reliable than the older bus topology
- The network is easy to install, maintain and expand
- Large selection of equipment from multiple vendors

New Advances

Although the performance of standard 10BaseT is 10Mbps, vendors and users have applied new technology to improve this transmission rate with:

- 100BaseT (Fast Ethernet) which uses 4 pair Category 3 cable, 2-pair Category 5 cable, or Fiber to deliver 10 times the base transmission rate (100Mbps). See page 9 for more detailed information.
- Full Duplex Ethernet (FDE), to effectively double the base transmission rate when used with full-duplex switching hubs (to 20 or 200Mbps).
- Switches that replace the shared media approach of standard hubs and concentrators, providing each connection with the full transmission rate, both increasing performance and decreasing the number of collisions by providing each node with its own transmission channel.
- Fiber cabling delivers superior performance by removing the impact of EMI and increasing the maximum segment length to 2000 meters.

Common Ethernet Equipment

A transceiver (transmitter/receiver) is either built into a Ethernet port or must be attached via an Attachment Interface Unit (AUI) connector. An external transceiver is usually only required when connecting an Ethernet port to a media that is not supported by the network card. For example, a card with an AUI and BNC connector cannot be attached to a fiber or UTP Ethernet network unless an AUI-to-Fiber (ST) or AUI-to-RJ45 transceiver is used. (see page 4)

Repeaters

A repeater simply electronically boosts and amplifies the signal to increase the transmission distance. Depending on your network's configuration, only a certain number of repeaters may be used to a maximum distance.

Tech Tip:

Consult with Industrial Computer Source's Application Engineering Staff on how to configure a trouble-free network.

Concentrators and Hubs

The simplest way to build an Ethernet network, concentrators and hubs are common on small 10BaseT networks. The hubs and concentrators serve as the central connection points for an Ethernet network.

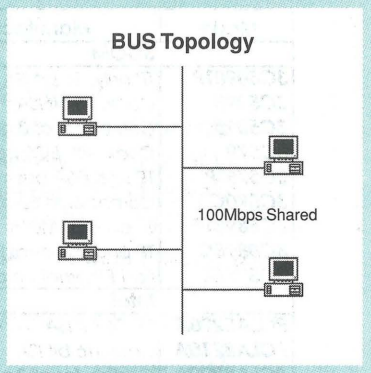
Intelligent Hubs/Stackables

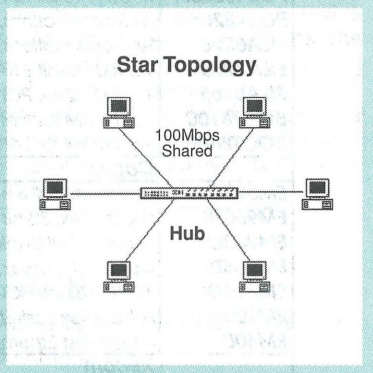
Intelligent hubs allow a network administrator to effectively monitor and control each individual port on a hub. The limits of the monitoring and control are dependent on the available software and the hubs. Stackables or modular hubs typically offer the management capabilities of intelligent hubs as well as mixed-media support and easy network expansion.

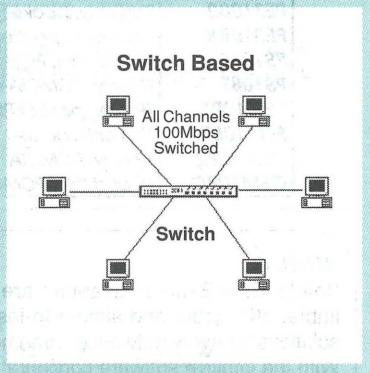
Bridges, Switches and Routers

Ethernet bridges are commonly used to partition network segments to reduce the number of collisions, increase end-to-end distance (beyond that of repeaters), or improve performance. Ethernet switches are essentially high-speed bridges that maintain individual connections for improved performance. (see diagrams)

Routers like bridges are also used to segment Ethernet networks. Routers filter and forward network traffic based on information other than the Ethernet destination address (MAC), such as the IP addresses contained in TCP/IP packets.







Ethernet Specifications

	Media Type	Media Connector	Max. Segment Length	Max. # of Nodes per segment
10Base5	Thick coax	AUI (TNC)	500m	100†
10Base2	Thin coax	BNC	185m	30†
10BaseT	UTP	RJ45	100m	1‡
10BaseF	Fiber Optic	ST or SMA	2000m	1‡
100Base-TX	Cat. 5 UTP	RJ45	100	1‡
100Base-FX	(62.5/125)MM Fiber	SC, MIC, ST	412	1

† Bus Topology—where stations are serially attached along a length of cable

‡ Star Topology—where each station is connected to an individual port on a hub or concentrator

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Dear Valued Customer,

Welcome to the first edition of the New Communications Source-Book from Industrial Computer Source, the industry's fastest growing manufacturer and direct marketer of quality IBM PC-compatible computer and communications networking hardware, software, I/O and accessories. For the **fifth** year running, the readers of Personal Engineering and Instrumentation News (January 1995 issue), named us **number one** in the market, over all other suppliers of ruggedized PC-based solutions. And to satisfy our customers' growing need for a single-source solution, we've introduced this Source-Book to include even more products.

In this Source-Book you will find everything you need to form a complete network connectivity solution - Ethernet and token ring products, multimedia concentrators, bridges and routers, print-servers, multitasking operating systems, UPS, board-level communications products, chassis, CPUs and much more. After reviewing its contents, we're confident that you will soon join the tens of thousands of other satisfied customers who have made us the most respected and requested name in the industry. Call our toll-free line to discover our exceptional:

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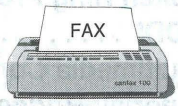

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b) If all packaging is as it was when shipped, i.e. clean and not marked on. All inserts, cards, registration forms, etc. received must be returned.

c) If you agree that you will erase any and all copies of the software you may have made for backup or any other purposes.

d) If the return is made within 30 days from date of shipment. Return authorization is required from Industrial Computer Source.

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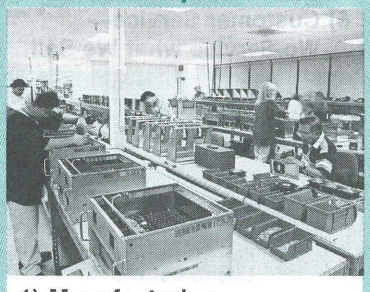
Why You Should Buy From Industrial Computer Source



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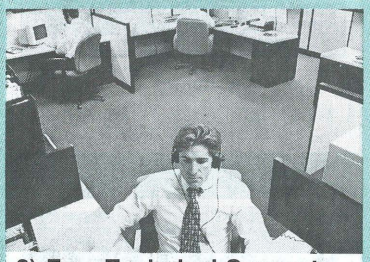

2) Free Technical Support—From Applications Engineers

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Ethernet Network Cards

Model	Manufacturer/Description	AUI	BNC	TP	Speed (Mb/sec)	PC Bus	Price
	3COM						
3C509BTP	TP only, 16-bit ISA			x	10	ISA	$ 125.00
3C509B	Coax, 16-bit ISA	x	x		10	ISA	$ 135.00
3C509BC	Combo for all 3 network types, 16-bit ISA	x	x	x	10	ISA	$ 150.00
3C579	Coax with EISA bus	x	x		10	EISA	$ 275.00
3C579TP	TP with EISA bus			x	10	EISA	$ 275.00
3C590C	Combo with 32-bit PCI bus	x	x	x	10	PCI	$ 199.00
3C589BTP	TP only, PCMCIA			x	10	PCMCIA (II)	$ 189.00
3C589BC	TP and thin coax, PCMCIA		x	x	10	PCMCIA (II)	$ 245.00
3C595TX	Fast Ethernet on a 32-bit PCI bus, TP			x	10/100	PCI	$ 285.00
	Intel						
PCLA8220A	TP, 16-bit ISA			x	10	ISA	$ 115.00
PCLA8210A	Coax, 16-bit ISA		x	x	10	ISA	$ 120.00
PCLA8200A	Combo for all 3 network types, 16-bit ISA	x	x	x	10	ISA	$ 140.00
PCLA8225A	TP only, 16-bit ISA, w/ Flash			x	10	ISA	$ 125.00
PCLA8205A	All 3 connections, 16-bit ISA, w/ Flash	x	x	x	10	ISA	$ 150.00
EILA8225	All 3 connections, 32-bit EISA, w/ Flash	x	x	x	10	EISA	$ 269.00
EILA8265	10/100, 32-bit EISA bus		x	x	10/100	EISA	$ 299.00
PILA8465	10/100, 32-bit PCI bus		x	x	10/100	PCI	$ 259.00
BOOT8100	Boot ROM for NetWare						$ 39.00
BOOT8400	Boot ROM for LAN Manager						$ 39.00
	Cogent						
EM525C	Combo for all 3 network types, 16-bit ISA	x	x	x	10	ISA	$ 99.00
EM960TP	Full Duplex, 32-bit PCI			x	10/20	PCI	$ 169.00
EM960C	Combo, Full Duplex, 32-bit PCI	x	x	x	10/20	PCI	$ 199.00
EM964TP	4-port Full Duplex, 32-bit PCI, TP			x	10/20 (x4)	PCI	$ 630.00
EM110TX	10/100, 32-bit PCI bus			x	10/100	PCI	$ 229.00
EM100	Full Duplex Fast Ethernet, 32-bit PCI			x	100/200	PCI	$ 249.00
EM400	4-port Fast Ethernet FDE, 32-bit PCI			x	100/200 (x4)	PCI	$ 1395.00
	Xircom						
PE310BT	TP only, pocket laptop adapter			x	10	Parallel port	$ 349.00
PE310B2	Thin only, pocket laptop adapter		x		10	Parallel port	$ 349.00
PE310BX	Thick only, pocket laptop adapter	x			10	Parallel port	$ 399.00
PS10BC	TP and thin, PCMCIA (Type II)		x	x	10	PCMCIA II	$ 259.00
PS10BT	TP only, PCMCIA (Type II)			x	10	PCMCIA II	$ 199.00
PEM10B2	TP only, pocket Ethernet+14.4 modem			x	10	Parallel port	$ 599.00
PEM10BT	Thin only, pocket Ethernet+14.4 modem		x		10	Parallel port	$ 599.00
CEM10B2	TP only, PCMCIA Ethernet+14.4 modem			x	10	PCMCIA II	$ 499.00
CEM10BC	TP and thin, PCMCIA Ethernet+modem		x	x	10	PCMCIA II	$ 569.00

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"Intel's EtherExpress adapters are reliable, affordable and simple-to-install solutions for every network environment. With the intuitive software configuration, auto-connection detection and the Flash-upgradable option, nothing is simpler."

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"Intel's EtherExpress 10/100 adapters are fully compatible with current 10BaseT networks and the new, faster 100Base-TX technology. During installation, the card will auto-sense the correct speed for trouble-free operation. Nothing is easier."

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"Cogent's Fast Ethernet (100Base-TX) adapters not only feature a 32-bit bus mastering design, and Predictive Pipelining for optimum performance but also has full duplex capability (effectively doubling bandwidth for switched networks)!"

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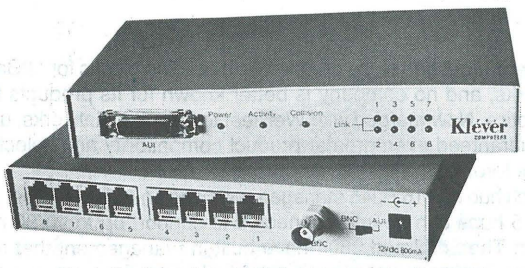
Model UTP8L



FEATURES

- Complies with IEEE802.3 10BaseT
- Three LEDs to Indicate Activities of the Hub
  - Collision LED
  - Activity
  - Power LED
- Provides 9 Port Ethernet Multi-Port Repeater
  - 8 Twisted Pair Port
  - 1 BNC/AUI Port
- Jabber Function to Isolate Network Failures (Auto-Partition)
- Automatic Preamble Generation Minimizes Bit Loss

The UTP8L Ethernet 10BaseT hub is designed for plug-n-play use in a UTP (Unshielded Twisted Pair) LAN environment. The hub combines high performance with a low-cost hardware solution. The cost effective design includes 8 twisted pair ports and 1 BNC/AUI port. All 9 ports are functionally equivalent and can be used for direct connection devices with the appropriate Ethernet interfaces.

Faxline Document #:1220

ORDERING GUIDE

Model UTP8L ..... $ 150.00
8 port 10BaseT hub with BNC/AUI

Tech. Tip:

With auto-partitioning for each port, the hub will automatically disconnect a device producing noise or excessive collisions. The device will automatically be reconnected when the error condition is cleared. Data packets are automatically truncated. This prevents a device from blocking the network by transmitting a continuous data stream and illegal packets.

Tranceivers

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Model MIL05T ..... $ 49.00
AUI to BNC
Model MIL10P ..... $ 49.00
AUI to RJ45
Model MIL01FA ..... $ 265.00
AUI to FOIRL-SMA
Model MIL01V ..... $ 175.00
AUI w/Vampiretap
Model MIL02F ..... $ 299.00
Half/Full duplex, 10 Base FL, Ethernet transceiver

Model MIL05T

FEATURES

- Converts 15-pin AUI Ethernet Port to Other Media
- Small Size 2.5" x 1.75" x .75" (64 x 45 x 19mm)
- Rugged, Reliable and Portable
- LEDs Indicate Power and SQE
- SQE Jumper Selectable

Ethernet Repeaters

Model MR125

The MR12x Series Micro Repeaters are 2 port media extenders designed for the coax media and Unshielded Twisted Pair (UTP) markets. The MR12x Series allow connections between different media, such as UTP (10BaseT), thin coax (10Base2), and thick coax (10Base5) in any combination. Segments on either side of the unit support full length, fully repeated transmission, and allow the maximum number of nodes specified by IEEE 802.3. The MR12x Series utilize state-of-the-art technologies, including a custom ASIC and Surface Mount Technology, which provide enhanced functionality, increased reliability, and improved performance.

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FEATURES

- Dual-Port Configuration
- IEEE 802.3 10BaseT, 10Base2, & 10Base5, FOIRL Compliant
- Automatic Polarity Detection and Correction on UTP Ports
- Automatic Segment Partitioning and Jabber Lock-up Protection
- 100-230 Volt Operation
- FCC, UL, CSA, (TUV-GS pending)

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Model MR121T..... $ 390.00
AUI to RJ45
Model MR122T..... $ 390.00
BNC to RJ45
Model MR123 ..... $ 575.00
AUI to AUI
Model MR124 ..... $ 575.00
AUI to BNC
Model MR125 ..... $ 675.00
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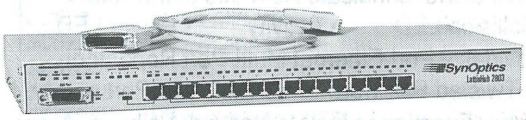

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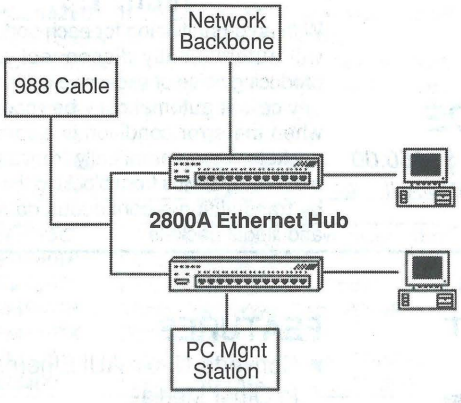


Concentrators and Hubs are the basic building blocks for 10BaseT networks, and no company is better known for its products than SynOptics. Now merged with Wellfleet to form BayNetworks, users are guaranteed even greater product compatibility and selections than before.

Each hub has 16 RJ45 managed ports and an AUI or ST fiber port. Up to 5 hubs can be interconnected to support up to an 80 node cluster. The 2803 and 2804 have built-in management that allow users to monitor and diagnose individual ports. For users requiring in more management capabilities, the 2813 and 2814 offer SNMP and RMON.

ORDERING GUIDE

Model	Managed	SNMP	RMON	AUI	ST-Fiber	Price
2803*	•			•		$ 869.00
2813-04	•		•	•		$2129.00
2813-05	•	•		•		$1355.00
2804*	•				•	$1159.00
2814-04	•		•		•	$2420.00
2814-05	•	•			•	$1645.00

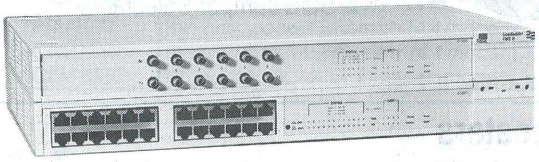
ACCESSORY

988	Expansion cable to connect hubs	$ 35.00

* Expansion cable provided

Stackable Ethernet Hubs

LinkBuilder® FMS II Series



- Optional Redundant Power System
- Optional SNMP Module to Manage All Stacked Hubs
- Stack up to Eight in One Cluster

Faxline Document #:1217

ORDERING GUIDE

Model	Connection	# of Ports	AUI Port	-Trans Int/ Bridge Slot	Max. # ports	Price
3C16670	TP(RJ45)	12	1*	1*	104	$ 855.00
3C16671	TP(RJ45)	24	1	1	208	$1500.00
3C16665	Fiber (ST)	6	1	1	208	$2225.00
3C16672	Telco (TP-50 pin)	24	1	1	64	$ 1500.00

* The 12-port TP hub does not support simultaneous use of both the AUI & tranceiver port.

ACESSORIES & EXPANSION MODULES

3C16630	Linkbuilder FMSII Management Module	$ 679.00
3C15000D	Transcend Workgroup Manager (V3.0)	$ 675.00
3C16040	Linkbuilder FMSII Bridge Management Module	$ 1649.00
3C18011	Linkbuilder FMSII Redundant Power Supply	$ 1215.00
3C16060	Bridge Micro Module (Plug-in)	$ 729.00
3C625	Expansion cable for attaching stackables	$ 59.00
3C16050	19" Rack Mount Kit	$ 49.00

As part of 3COM's SuperStack strategy, the FMS II series supports every Ethernet media type and is fully compatible with other units that support token ring, SNA, remote access, routing, and switching. LinkBuilder FMS II Stackable Ethernet Hubs can keep your initial investment low, letting you add and expand however and whenever you need.

Tech. Tip

Don't hesitate to contact Industrial Computer Source's Application Engineering Staff for free advice on designing and building your network.

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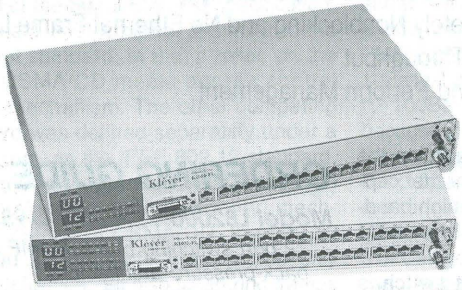
Ethernet Workgroup Hubs

For Departmental Networks

K1016 & K1032 Series



- UTP Connectors for Flexibility
- Fiber, BNC, and AUI Backbone Connectors for Multi-Media Applications
- Reliability—Failure in One Hub Does Not Affect the Others
- Easy to Read Numerical Display on Front Panel
- Shows Percent Bandwidth & Collisions

Faxline Document #:1218

The KleverHUB™ family of 10BaseT workgroup hubs offer more advanced features than other comparable 10BaseT hubs at a lower cost per unit. Consisting of two product sets: the K1016 and K1032, both versions are available with a Fiber port (F).

The Model K1016 is a 16 port 10BaseT hub that can serve as an entry level hub for up to 16 users in a workgroup. The Model K1032 is a 32 port 10BaseT hub that will meet the requirements for most departmental Ethernets.

ORDERING GUIDE

Model K1016S . . . . . $ 665.00
16 port Smart 10BaseT Hub, BNC and AUI ports

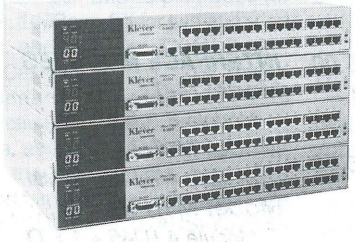
Model K1016SF . . . . . $ 949.00
16 port Smart 10BaseT Hub, w/Fiber, BNC, and AUI ports

Model K1032S . . . . . $ 1075.00
32 port Smart 10BaseT Hub, BNC, and AUI

Model K1032SF . . . . . $ 1319.00
32 port Smart 10BaseT Hub, Fiber, BNC, and AUI

Stackable Hubs

Model K1032ST



- 32 or 16 UTP/STP Ports per Hub
- 1 AUI Port per Hub
- 1 Optional Port per Hub AUI to Fiber, **or** BNC, **or** UTP
- Stacks up to 4 Hubs for 128 UTP/STP Ports and 4 AUI and 4 Optional Ports
- Upgradable to SNMP Management
- In-Band and Out-of-Band Management

Faxline Document #:1219

The KleverHUB™ family of 10BaseT workgroup hubs offer the lowest connectivity cost per managed ports for Ethernet Local Area Networks. Consisting of two product sets: the K1016ST and K1032ST, both are compatible with IEEE802.3 (10BaseT) standard for Ethernet, and offers flexibility, reliability and management at a very economical price.

The Model K1016ST is a 16 port stackable 10BaseT hub that can serve as an entry level hub for up to 16 users in a workgroup. The Model K1032ST is a 32 port stackable 10BaseT hub that will meet the requirements for most departmental Ethernets. Both hubs feature modular RJ45 host ports for unsheilded/shielded twisted pair connections on the front panel.

Tech. Tip:

Combine the SNMP module with the KVIEW Windows-based software to build and maintain a controlled, managed network.

ORDERING GUIDE

Model K1016ST . . . . . $ 859.00
16 port Stackable 10BaseT Hub, AUI and Custom port

Model K1032ST . . . . . $ 1289.00
32 port Stackable 10BaseT Hub, AUI and Custom port

ACCESSORY

Model KSNMP . . . . . $ 489.00
SNMP Module

Model KVIEWIB . . . . . $ 399.00
Windows-based SNMP, In-band Network Management software

Model KBVIEW00B . . . . $ 399.00
Windows-based SNMP, Out-of-band Network Management software

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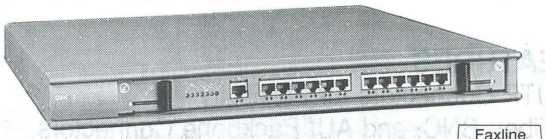
Model LB2000



Faxline Document #:1223

FEATURES

- 12 Port Stackable Ethernet Switch
- 120Bbps Total Effective Bandwidth
- 40 Micro Seconds Fixed Latency
- Completely Nonblocking and No Ethernet Frame Loss
- 100% Throughput
- Plug-and-Perform Management

The LB2000 Ethernet switching hub contains a 12 port module. Every port on the LB2000, whether operating at full or half duplex Ethernet speeds, can transmit/receive at full capacity, simultaneously and without any loss of performance.

The LB2000 is SNMP-managed and supports the 802.1d spanning tree routing algorithm to prevent loops and to support network fail-safe redundancy. In addition, the LB2000 features full duplex Ethernet capability and easy connectivity to high bandwidth devices based on Fast Ethernet, ATM or FDDI.

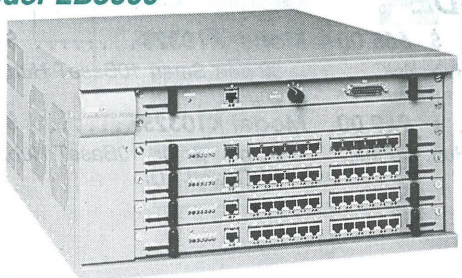
ONET's family of Ethernet switches increases your network's performance while protecting your investment in existing infrastructure.

ORDERING GUIDE

Model LB2000 . . . . . $ 9540.00
12 port switching hub w/SNMP and back-pressure architecture

Model LB1000 . . . . . $ 5940.00
12 port standalone switch, no back pressure, no SNMP

Model LB5000



Faxline Document #:1224

FEATURES

- 12 to 48 Port Ethernet Switch
- 480Mbps Total Effective Bandwidth
- 40 Micro Second Fixed Latency
- Completely Non-blocking with No Ethernet Frame Loss
- 100% Throughput Performance
- Plug-and-Perform Management and Redundant Power Supplies for Fail-Safe Operations
- Modular Design and Hot Swapping for Easy Expansion
- Upgradeable to FDDI, Fast Ethernet, ATM

The LB5000 Ethernet switching hub, based on ONET's innovative MetaSwitching architecture, enables all ports to reach maximum Ethernet throughput simultaneously without blocking. The LB5000 fully implements the industry's first distributed ASIC-based cell-architecture providing excellent performance, high integration level, high reliability and excellent design security.

The scaleable LB5000 Etherent switching hub contains four slots, each capable of holding a 12 port module, thereby supporting configurations of between 12 and 48 ports.

The LB5000 Ethernet switching hub maintains a fixed 40 µsec cut-through delay for all types of communications. Because the latency remains constant, both network load and retransmission overhead are minimized. High-performance, Fixed-latency and the Modular Interface makes the LB5000 ideal for bandwidth-intensive environments—like hi-res graphics, video and multimedia.

ORDERING GUIDE

Model LB5000 . . . . . $ 4995.00
*Chassis and Power Supply **ONLY***

POWER SUPPLY OPTION

Model PS5000 . . . . . $ 1995.00
Additional Power Supply

INTERFACE MODULES

Model M8T . . . . . $ 1850.00
Module 8 RJ45

Model M4T/1A . . . . . $ 990.00
Module 4 RJ45 + 1 AUI

Model M4T/1F . . . . . $ 1479.00
Module 4 RJ45 + 1 F.O

Model M4F . . . . . $ 2935.00
Module 4 port F.O

Model M6C . . . . . $ 2975.00
Module 6 port BNC

For pricing, simply add the individual model prices listed in the Ordering Guide.

Tech Tip:

Each LB5000 **MUST include at least 2** Interface Modules on the main board according to the following table. Customers **MUST** select one module from **Column 1** and the corresponding module in **Column 2**. Additional modules can be added on a per-slot basis—up to 4 modules in a single chassis.

REQUIRED EXPANSION MODULES

Column 1	Column 2	Description
M8T	M4T/1A	*12 port RJ45 or 11 port RJ45 +1 AUI*
M8T	M4T/1F	*11 port RJ45 + 1 F.O.*
M8T	M4F	*8 port RJ45 + 4 F.O.*
M8T	M6C	*6-8 port RJ45 + 6 - 4 BNC*
M4F	M4F	*8 port F.O. (2 additional RJ45 instead of management)*
M6C	M6C	*12 port BNC*
M6C	M4F	*6 port BNC + 4 port F.O.*

What is Fast Ethernet?

In response to the growing needs of users interested in more performance, two new 100 Mbps LAN standards were drafted. The first, and the one described here, is the 100BASE-T Fast Ethernet standard. Drafted as part of the 802.3 Ethernet specification, 100Base-T Fast Ethernet is similar to the Ethernet standard, in that it relies on the same CSMA/CD media access control (MAC) mechanism. The other competing standard was defined separately under a new group, as the IEEE 802.12 standard. With a media access control that is based on an entirely new "demand-priority" mechanism instead of CSMA/CD, the 802.12 standard is capable of transporting not only Ethernet frames, but also token-ring frames as well. As a result, this standard is called 100VG-AnyLAN. Because 100VG-AnyLAN is drastically different from Ethernet, it is not discussed in this section unless within the context of the 100Base-T Fast Ethernet standard.

Fast Ethernet is essentially a boost of Ethernet's speed of 10 Mbps to 100 Mbps — a tenfold increase. As described as part of the original IEEE 802.3, 100Base-T Fast Ethernet is 10-times as fast as standard Ethernet, but is the same with regard to the frame format and the MAC mechanism. The reason this is possible is because the MAC layer for Ethernet was specified to be speed-independent. So despite that Fast Ethernet is 10 times faster than Ethernet, both use the same MAC layer.

For 100Base-T Fast Ethernet, there are three types of media that are supported: 100BaseT4 for 4-pair twisted-pair, Cat.3 (or above) cable, 100Base-FX for two-stranded optical fiber, and 100Base-TX for 2-pair, twisted-pair, Category 5-grade cable. The FX and TX standards are sometimes also known collectively as 100Base-X. Rather than create new media standards for 100Base-X, the Fast Ethernet committee used the standards originally developed by ANSI for the FDDI standard (ANSI X3T9.5). The T4 specification is provided as an alternative to users with lower-grade twisted pair cabling. Of the three, the most prevalent is the 100Base-TX standard.

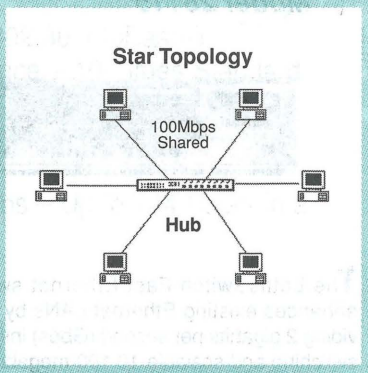
The TX media standard is based on the ANSI TP-PMD physical media specifications (FDDI over STP or UTP wiring). For the common UTP wiring, two pairs of wires (pin-pairs 1,2 and 3,6) are used, one to receive and the other to transmit data signals. This is different from the pairs selected for the TP-PMD standard in order to comply with the 10Base-T standard. The wiring requirements for 100Base-TX is different from 10Base-T because the signal frequency of the network is much higher than for standard Ethernet. For proper operation of 100Base-TX, users are required to use 100 ohm, Category 5-grade UTP cable, and cannot use Category 3 or Category 4. Like 10Base-T 100Base-TX has a hub-to-end station limit of 100 meters. With the use of repeaters, users can extend the single segment distance to 200 meters. Users must be careful to calculate round-trip times as meeting the minimum specification is crucial to proper operation.

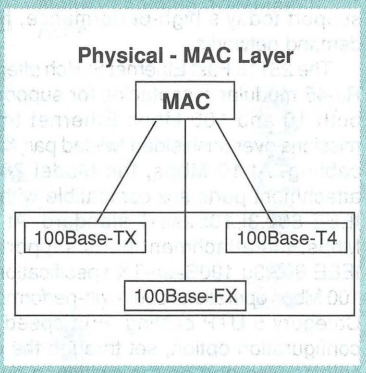
Key Benefits

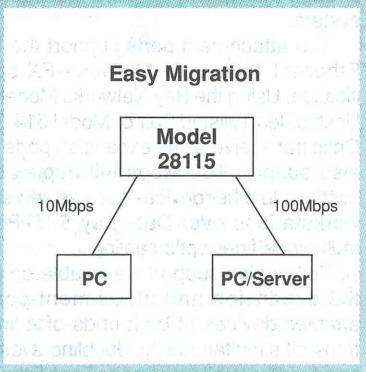
While the implementation of Fast Ethernet is still new, the underlying basis is the same that has been used in Ethernet for the past decade — the same technology that is used at over 30 million nodes all over the world. This has immediate benefits: (1) Convenient migration for most users (2) A 10-fold performance increase over standard Ethernet (3) Easy expansion of networks due to passive media access techniques (4) Broad vendor support means more product selection (5) Fast Ethernet products are usually less expensive than competing products based on alternative technology.

Tech tip:

When designing your 100Base-T Fast Ethernet network, keep in mind that you need to calculate the round-trip delays for your collision domains. If you want free assistance, our professional certified network engineers are happy to answer any questions you have on how you can upgrade your network. And if you buy product or a system from us, you also get unlimited, FREE technical phone support. Call now for your free consultation.







100Base-X Technical Specifications

Technology	Wiring	Topology	Connector	Length
100Base-TX	Cat. 5 UTP/STP, 2 pair	Star	8-pin (RJ-45) 9-pin ("D-type")	100m
100Base-FX	62.5/125 MM fiber	Star	SC, MIC, ST	412m
100Base-T4	Cat. 3 or above, 4 pair	Star	8-pin (RJ-45)	100m

Bay Networks LattisSwitch
10/100 Mbps Ethernet Switch

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Model 28115

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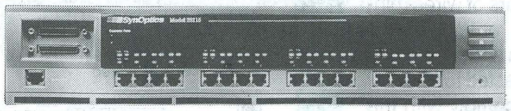


FEATURES

- Improves Overall Network Performance
- Reduces Network Segmentation Costs
- Eliminates Network Congestion
- Supports Both 10 and 100 Mbps Speeds
- 16 Ports

FAST ETHERNET

The LattisSwitch Fast Ethernet switch enhances existing Ethernet LANs by providing 2 gigabits per second (Gbps) internal switching and scalable 10/100 megabit per second (Mbps) dedicated bandwidth to support today's high-performance, high-demand networks.

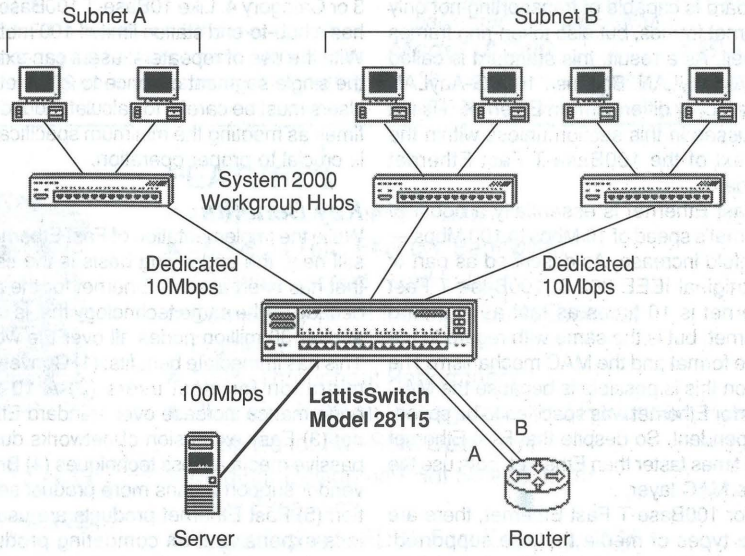
The 28115 Fast Ethernet Switch offers 16 RJ-45 modular receptacles for supporting both 10 and 100 Mbps Ethernet transmissions over unshielded twisted pair (UTP) cabling. At 10 Mbps, the Model 28115 attachment ports are compatible with the IEEE 802.3i 10Base-T standard. At 100 Mbps, the attachment ports support the IEEE 802.3u 100Base-TX specification for 100 Mbps operations over high-performance Category 5 UTP cabling. Port speed is a configuration option, set through the console/service port on the switching hub or through the Optivity network management system.

The attachment ports support the Fast Ethernet Alliance's 100Base-FX specification. Using the Bay Networks Model 515 Unshielded Twisted Pair or Model 514 Fiber Optic transceivers, the expansion ports can also support 100 Mbps full-duplex connections to other devices such as servers or workstations over Category 5 UTP and multimode fiber optic cabling.

Full-duplex support - available on both the expansion and attachment ports - enables devices at both ends of a link to transmit simultaneously, doubling available bandwidth. While ordinary Fast Ethernet allows only one transmission to occur at a time, the 100Base-T specification employs a continuous signaling system which enables frame transmission to take place in both directions.

The LattisSwitch switches also include a front-panel dot matrix LED display to report device status at a glance, while an RS-232 local console/service port is available for local setup, configuration and diagnostic operations.

The Model 28115 offers a faster, easier and less-expensive alternative to routers for segmented networks to improve overall system performance. Routers continue to enforce critical firewall and security policies



LATTISSWITCH EXPANSION

Up to seven LattisSwitch switches can be linked in a single stack, providing a scalable, high-performance solution for expanding environments. The switches automatically detect connections between units, creating a high-performance 400 Mbps backplane extension that offers a number of network expansion options.

Redundant links can also be implemented between LattisSwitch switches. In a redundant configuration, one link automatically assumes standby status, providing a backup in the event of a primary link failure. The LattisSwitch switches support the Spanning Tree algorithm, enabling any port to be configured as an automatically-correcting redundant link.

FAST ETHERNET ADAPTER CARDS

Operating at 10 Mbps, the Model 28115 switch's attachment ports are fully compatible with installed IEEE 802.3 Ethernet adapter cards, allowing seamless integration with existing Ethernet networks. For 100 Mbps Fast Ethernet operation, devices must be equipped with adapter cards that support the IEEE 802.3u 100Base-T specification. See the list on page 4 for the scalable 10/100 Mbps Ethernet EM110TX cards.

Tech Tip:

All products from Bay Networks are available with an optional Express Replacement Program from Industrial Computer Source. This program typically provides overnight or next-day replacement of failed network equipment. Call for more information and pricing.

ORDERING GUIDE

Model 28115 ..... ***$18950.00***
LattisSwitch Model 28115 10/100 Mbps 16-port UTP Switched Ethernet Workgroup Concentrator

Model 514 ..... ***$ 995.00***
LattisSwitch Model 514 100 Mbps Fiber Optic Transceiver

Model 515 ..... ***$ 795.00***
LattisSwitch Model 515 100 Mbps UTP Transceiver

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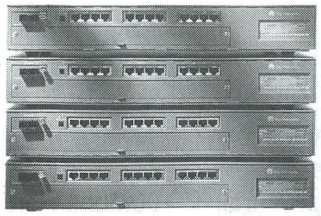
Bay Networks 100Base-T Fast Ethernet Hub

Model BN-100



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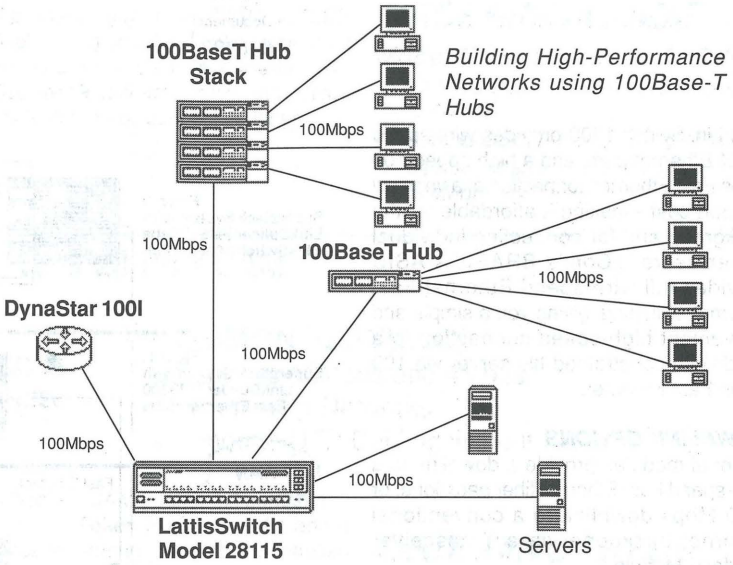
FEATURES

- Compliant to IEEE 802.3u 100Base-T
- 100 Mbps Performance – 10 Times Standard Ethernet!
- High Port-Density (12-24 Ports)
- LED Matrix Display
- Cascade Up to 6 hubs – Up to 144 Users in a Single Domain



Building High-Performance Networks using 100Base-T Hubs

FAST ETHERNET

The Bay Networks 100Base-T Fast Ethernet Stackable Hubs deliver safe, proven, industry-standard 100 megabit-per-second (Mbps) connectivity for power workgroups and other highly-demanding network environments. The hubs combine the most desirable attributes of both modular and stackable hubs, providing a low-cost, high-performance solution that easily supports today's increasingly-powerful PCs and servers. By delivering full 100 Mbps throughput, the 100Base-T hubs dramatically reduce network bottlenecks and increase response times tenfold over traditional 10 Mbps shared-media Ethernet networks.

The 100Base-T hubs are preconfigured with 12 RJ-45 modular receptacles supporting the IEEE 802.3u 100Base-TX specification over two-pair Category 5 unshielded twisted pair cabling. The hubs also include built-in expansion and media adapter slots that support a variety of host, network management and 100Base-T media adapter modules, providing additional configuration flexibility for expanding network environments.

Single hubs provide a high-performance, low-cost solution for supporting up to 12 users. As demands grow, an additional 12 ports can be added for a total of 24 ports per hub. Up to six 100Base-T hubs can be stacked to create a single unit or collision domain supporting up to 144 users (132 users with management), providing an efficient and cost-effective solution for growing network environments. Stack connections are made via cascade connectors on the back of each unit using optional expansion cables.

The 100Base-T media adapter slot supports modular cards that provide an alternative to the hub's preconfigured 100Base-T media. The 100Base-FX fiber media adapter offers one SC-type multimode fiber connector to provide a direct connection to other compatible Fast Ethernet devices, such as LattisSwitch Fast Ethernet switches or BLN, BCN and ASN routers, over 62.5/125-micron multimode fiber optic cabling. The 100Base-T media adapter can also be used as a direct attachment to end stations or servers where multimode fiber optic cabling is already installed.

New hubs can be added to the stack as needed, providing an incremental growth path that doesn't demand a substantial up-front investment. An automatic termination and bypass feature enables the hubs to detect the top and bottom of the stack and apply the appropriate termination to the bus.

The addition of a network management module provides full (SNMP) Simple Network Management Protocol capabilities supported by Bay Networks' Optivity family of network management applications. Up to six hubs can be linked to act as a single managed unit, providing a scalable solution that enables networks to grow incrementally for a modest investment.

Featuring redundant management and power supplies, the 100Base-T stackable hubs deliver maximum availability for even the most demanding networks. The optional redundant power supply unit (RPSU) provides a backup power source for up to four hubs.

ORDERING GUIDE

Model BN-100 . . . . . $2375.00
100Base-T Hub with 12 100Base-TX ports, one expansion slot and one 100Base-T Media Adapter slot

Model BN-100FX1 . . . . . $ 495.00
100Base-FX Fiber Media Adapter for the 100Base-T Hub, 1-port

Model BN-100NM $1995.00
Network Management Module for the 100Base-T Hub

ACCESSORIES

Model BN-100CC . . . . . $ 89.00
Cascade Cable for the 100Base-T Hub

Model RPSU $2995.00
Redundant Power Supply Unit

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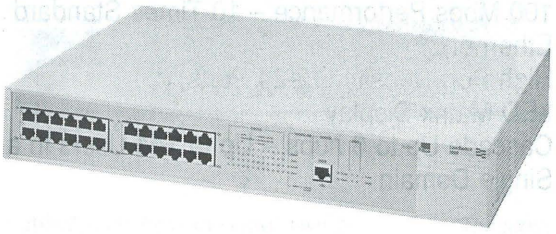
Model 3C16900



FEATURES

- High Performance
- Stackable
- Affordable
- 24: 10Mbps Ports, 1: 100Mbps Port

Faxline Document #:1327

The LinkSwitch 1000 provides wire-speed on 24 Ethernet ports and a high-speed 100 Mbps Fast Ethernet connection at a very low per-port cost - making it affordable for the workgroup and for connecting individual power users. 3Com's BRASICA ASIC provides full-wire-speed Ethernet/Fast Ethernet switching, giving you a simple and convenient high-speed connection to a bandwidth-constrained file server via 100 Mbps Fast Ethernet.

DOWNLINK OPTIONS

Optional modules provide a downlink to a high-speed Fast Ethernet fiber backbone, or a 10 Mbps downlink to a conventional Ethernet backbone via a Transceiver Interface Module.

TWO SWITCHING MODES

Two software-selectable switching options are available – cut-through and store-and-forward – so you can adapt the device easily to your requirements.

SUPERSTACK SUPPORT

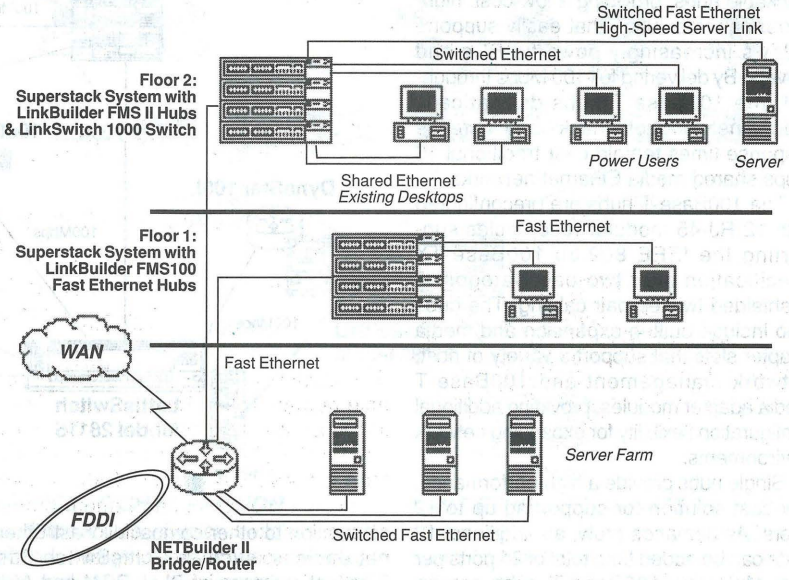
You can use the LinkSwitch 1000 in a SuperStack system and manage it with Transcend applications.

RELIABILITY AND SECURITY

The switch provides broadcast traffic control and LAN security architecture that automatically disconnects unauthorized devices.

MANAGEMENT OPTIONS

Graphical SNMP management is available with Transcend. The switch also offers RMON support as well as management via telnet or a local terminal.



You can easily combine switched Ethernet workgroups and 100Base-T Fast Ethernet workgroups in one network.

ORDERING GUIDE

Model 3C16900 . . . . . $4995.00
Switch LinkSwitch 1000

Model 3C16920 . . . . . $1199.00
Interface Modules: 100Base-FX Fiber Module

Model 3C1206-0 . . . . . $ 85.00
AUI Transceiver Interface Module (1 female AUI)

Model 3C1206-4 . . . . . $ 205.00
Fan-Out Transceiver Interface Module (1 male AUI)

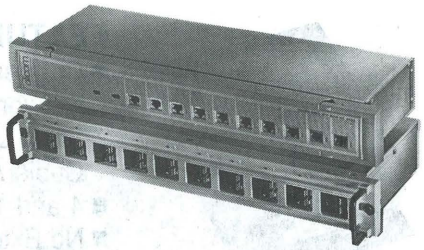
Model 3C1206-5 . . . . . $ 335.00
Fiber-Optic Transceiver Interface Module (1 pair ST)

Model 3C1206-6 . . . . . $ 200.00
Coaxial Transceiver Interface Module (1 BNC)

Model 3C1206-3 . . . . . $ 125.00
Transceiver Interface Module (1 RJ-45)

8 Port MAU

Model OC3626



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FEATURES

- Plug in Compatibility with IBM Multistation Access Unit 8228
- Built in Diagnostic Facility
- LED Indicators to assist During Network Installation and Troubleshooting

The Olicom® Multistation Access Units (MAU)are available in either STP or UTP versions. The MAU inserts active stations into the Token Ring network and removes inactive or defective stations from the network. The 8 lobe connectors, as well as the ring-in and ring-out ports, support either 8 pin RJ45 or IBM Cabling System plugs.

All products fully comply with the IEEE 802.5 token ring standard and support both 4Mbps and 16Mbps ring speeds. The OC3626 are 19" rack-mountable and include LED indicators to display active lobes.

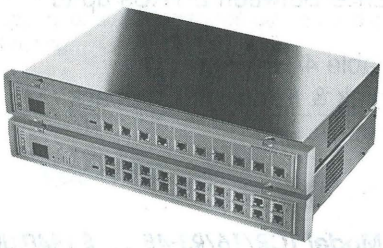
ORDERING GUIDE

Model OC3626 . . . . . $ 595.00
TR MAU 8 UTP (Type III) passive, 16/4Mbps

Model OC3628 . . . . . $ 595.00
TR MAU 8 STP (Type1) passive, 16/4Mbps

10 & 20 Port CAM

Model OC3671



Faxline Document #:1226

COMMON FEATURES

- Supports 16Mbps and 4Mbps Token Ring Networks
- Supports UTP Cabling without Filters

The Olicom® CAM is an intelligent stackable hub for Token Ring networks and it integrates the features of both a Controlled Access Unit (CAU) and a Lobe Attachment Module (LAM). The Olicom® CAM, targeted at small workgroups and remote branch offices, is a cost effective solution that does not sacrifice performance or reliability and is 100% IBM compatible.

ORDERING GUIDE

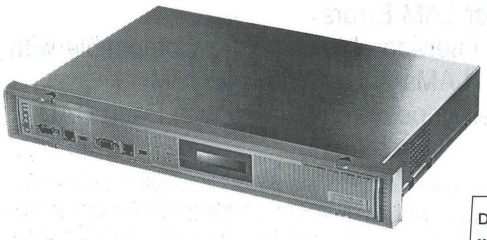
Model OC3671 . . . . . $2195.00
CAM, UTP, 10 stations, 16/4Mbps

Model OC3672 . . . . . $2995.00
CAM, UTP, 20 Stations 16/4Mbps

TOKEN RING PRODUCTS

High-Performance Local Bridge 16/4

Model OC3401



Faxline Document #:1223

FEATURES

- 2 Port Source Routing Bridges
- Bridges 16 to 16Mbps, 16 to 4Mbps and 4 to 4Mbps Token Rings
- Automatic Configuration of Single Route Broadcast

The Wire Speed Local Bridge 16/4 is a high performance, two-port, token ring source routing bridge. The forwarding rate of the local bridge is very close to wire speed for frame sizes larger than 256 bytes. For frame sizes of 28 bytes, the Wire Speed Local Bridge will forward data at a rate of 27000+ frames per second.

ORDERING GUIDE

Model OC3401 . . . . . $3960.00
2 port, wire-speed bridge

Tech. Tip:

These bridges allow you to interconnect mixed-speed Token Networks without causing a network failure.

Token Ring Products

Token Ring LAU

Model LAU-2

Faxline Document #:1103

FEATURES

- Shares One Lobe Cable to Attach 2 or 4 Ports
- 4 or 16 Mbps
- No External Power Required

ORDERING GUIDE

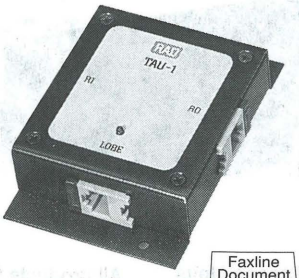
Model LAU-4 ..... **$ 360.00**
4 port (DB9)

Model LAU-2 ..... **$ 249.00**
2 port (DB9)

Model TST ..... **$ 65.00**
Charger (DB9) with RJ45 adapter (required for LAU)

Token Ring TAU

Model TAU-1



Faxline Document #:1104

FEATURES

- Creates a Small Network Segment From One Lobe Cable Attachment
- 4 and 16 Mbps
- No External Power Required

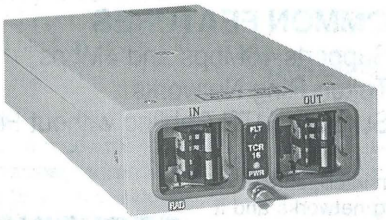
ORDERING GUIDE

Model TAU-1 ..... **$ 169.00**
Unit, manual, 4/16Mbps, Type III (UTP)

Active Token Ring Repeater

Model TCR/16

Faxline Document #:1105



FEATURES

- Extends the Distance Between 2 TAUs up to 2,470ft (750m)
- 4 Mbps or Switchable 4/16 Mbps
- Detects Cable Break & Performs Loopback

ORDERING GUIDE

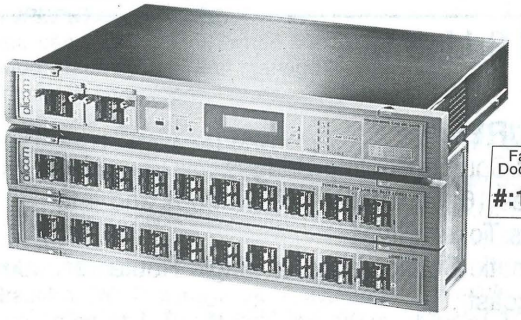
Model TCR/4 ..... **$ 995.00**
4 Mbps only, STP (Type I)

Model TCR/16 ..... **$ 1440.00**
4/16 Mbps, STP (Type I)

Model TCR/16/RJ-45 .. **$ 1440.00**
4/16 Mbps, Type III (UTP)

CAU (Token Ring Hub)

Model OC3610



Faxline Document #:1235

FEATURES

- Supports 16Mbps and 4Mbps Token Ring Networks
- Automatic Ring Recovery in Case of Adapter, Lobe or LAM Errors
- 100% Interoperable and Plug-Compatible with CAUs, LAMs and MAUs from IBM
- Copper Repeaters Included with Each CAU

The Olicom® Controlled Access Unit (CAU) is an IBM compatible intelligent stackable hub that allows connections of up to 80 token ring network lobe via Lobe Attachment Modules (LAM). Up to four LAMs can be connected to each CAU, and up to 20 lobes can be connected to each LAM.

ORDERING GUIDE

Model OC3610 ..... **$ 2995.00**
CAU, STP W/SNMP-LNM Supports 16/4Mbps

Model OC3611 ..... **$ 1995.00**
20 port STP LAM, 16/4Mbps

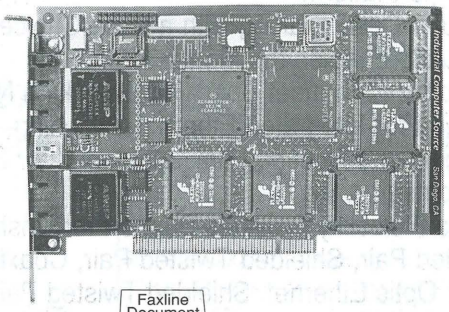
Model OC3612 ..... **$ 1995.00**
20 port UTP LAM, 16/4Mbps

ACCESSORY

Model 3638 ..... **$ 80.00**
Type III Media Filters, 16/4Mbps

FDDI Network Adapters

Model 2200-FSM



Faxline Document #:1227

FEATURES

- Available with FDDI MIC (Fiber) or RJ45 (UTP) Connectors
- Compliant with all Applicable ANSI/ISO Standards
- Available with 1300nm for 62.5/125micron Fiber
- 128kByte Packet Buffer (ISA & EISA versions)
- PCI Version Supports FIFO Buffering for Simultaneous, Full Speed, Zero Latency PCI & FDDI Data Transfers

Fiber Distributed Data Interface (FDDI) networks provide the highest (100Mbps) data transfer rate of any standard network in the world. FDDI's services are required by emerging multimedia, imaging, windowing and database applications that demand high performance and guaranteed bandwidth. Rockwell FDDI cards feature full SMT support for auto-diagnostics during trouble-shooting.

ORDERING GUIDE

Model 2200-FD . . . . . $ 1795.00
PCI/FDDI/DAS/SC, software, manual

Model 2200-FSS . . . . . $ 1295.00
PCI/FDDI/SAS/SC, software, manual

Model 2200-FSM . . . . . $ 1295.00
PCI/FDDI/SAS/MIC, software, manual

Model 2200-UTP . . . . . $ 795.00
PCI, software, manual

Model 1275-F . . . . . $ 1295.00
EISA FDDI, software, manual

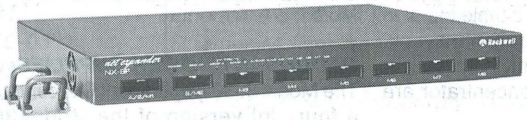
Model 1275-UTP . . . . . $ 895.00
EISA UTP/FDDI connector version, software, manual

Model 1265-F . . . . . $ 995.00
ISA FDDI connector version. software, manual

Model 1265-UTP . . . . . $ 745.00
ISA UTP/FDDI connector version, software, manual

FDDI Concentrator

Model NX-8F



Faxline Document #:1228

FEATURES

- Supports 8 FDDI Ports
- Compliant with all Applicable ANSI/ISO Standards
- Available with FDDI MIC (Fiber) or RJ45 (UTP) Connectors
- FDDI SMT Version 7.3
- RS232C Port for External Diagnostics

Rockwell Network Systems NetExpander™ concentrators provide managed connectivity for single or dual attached stations; increasing your network's reliability, while simplifying configurability and enhancing overall network manageability.

An integrated SNMP MIB II agent allows the NetExpander™ to be managed by an SNMP manager and an RS232C port is provided for out-of-band diagnostics and setup.

The NetExpander™ conforms with all applicable ANSI/ISO standards for FDDI, and supports FDDI on both fiber and unshielded twisted pair media, making it compatible with virtually all Premises Distribution Wiring Systems

ORDERING GUIDE

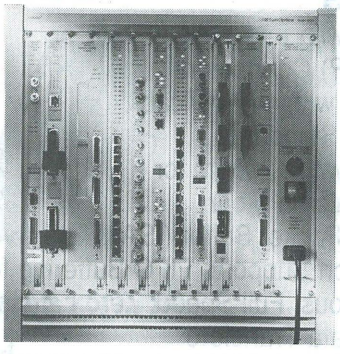
Model NX-8F . . . . . $ 7875.00
FDDI Concentrator, 8 port Fiber

Model NX-8UTP . . . . . $ 4725.00
FDDI Concentrator, 8 port UTP

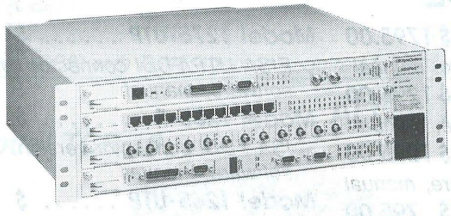
Model NX-6/2 . . . . . $ 5515.00
FDDI Concentrator, 6 UTP, 2 Fiber

Bay Networks™ (SynOptics)
LattisNet Systems 3000 Concentrators

Model 3000N (12-Slot)



Model 3030-01-HN (4-Slot)



FEATURES

- Multiple Bus Architecture allows Integration of 5 Ethernet, 2 Token Ring and 3 FDDI Networks into a Single Platform
- Modular Design, along with a Wide Choice of Modules, Enables the Model 3000 to be Customized to meet Specific Networking Needs
- Support for Integrated Ethernet Switching, Bridging and Routing Eliminates need for External Equipment
- Media Flexibility Provides Support for Unshielded Twisted Pair, Shielded Twisted Pair, Coaxial and Fiber Optic Ethernet, Shielded Twisted Pair and Unshielded Twisted Pair Token Ring, and Shielded Twisted Pair and Fiber Optic FDDI from a Single Platform
- Supports full IEEE 802.3 Ethernet Repeater Functionality, enabling Support for Greater Distances and Intercommunication Between Multiple Media Types
- Supports full IEEE 802.5 Token Ring Ring-In/Ring-Out and Repeater Capabilities to create Large Single Rings without Bridging or Routing
- Implements full ANSI FDDI Standard over Three 100 Mb/s Paths (Primary, Secondary and Local)

System 3000 concentrators feature a multiple-bus backplane architecture which enables them to simultaneously support a combination of 10 megabit per second (Mb/s) Ethernet, 4 Mb/s and 16 Mb/s Token Ring, and 100 Mb/s Fiber Distribution Data Interface (FDDI) networks. Through a variety Ethernet, Token Ring and FDDI connectivity, internetworking and networking management modules, you can create custom configurations that meet your specific networking needs.

A single Model 3000 can simultaneously support 5 independent Ethernet segments, 2 Token Ring networks and 3 FDDI paths, delivering maximum flexibility for a wide variety of network topologies.

The Model 3000 chassis offers 12 slots to hold any combination of System 3000 modules supporting IEEE 802.3-compatible Ethernet over unshielded twisted pair wire, shielded twisted pair wire, fiber optic cable or thin coaxial cable; IEEE 802.5-compatible Token Ring over unshielded or shielded twisted pair wire; an American National Standards Institute (ANSI) X3T9.5 FDDI over fiber optic cable and shielded twisted pair wire.

When configured in an Ethernet network with a retiming or networking management module, the concentrator provides full IEEE 802.3 repeater functionality. The System 3000 concentrator can also accommodate LattisNet™ Ethernet Switching Engines™ as well as local and remote bridges and routers, delivering integrated internetworking solutions from a single platform.

The Model 3000 can be installed in 2 mounting arrangements: on a table top or in a EIA-standard 19-inch equipment rack, which can hold 11 rack-mounting units. Four different versions of the concentrator are available.

MULTI-SEGMENT ETHERNET

The Model 3000N Premise Concentrator includes a chassis, a front-accessible modular fan tray, a front-accessible Model 3002 460W power supply, and a backplane bus capable of supporting up to 5 independent, manageable Ethernet segments. The backplane also includes a dedicated network management interface bus and power supply bus.

MULTIPLE ETHERNET/TOKEN RING NETWORKS

The Model 3000NT Premise Concentrator is identical to the Model 3000N, with the addition of two Token Ring buses on the concentrator backplane. The Token Ring buses support two independent, manageable Token Rings, each of which can operate at either 4 Mb/s or 16 Mb/s.

ETHERNET, TOKEN RING AND FDDI

The Model 3000S Premise Concentrator is identical to the Model 3000NT, with the addition of an FDDI bus configured to support up to three separate ring paths, primary, secondary or local-running at 100 Mb/s.

REDUNDANT POWER SUPPLIES

The Model 3030 Department Concentrator is a four-slot version of the Model 3000, designed for medium-density departmental networks. Like the Model 3000, the Model 3030 accommodates any combination of System 3000 host, network management or internetworking modules supporting both Ethernet and Token Ring.

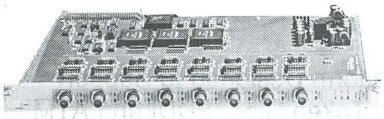
ETHERNET ONLY

The Model 3030-01 includes a chassis, an easily-accessible power supply/fan unit, and a backplane with Ethernet, network management interface and power supply buses.

ETHERNET/TOKEN RING

The Model 3030-04 is identical to the Model 3030-01 and includes two Token Ring buses on the concentrator backplane. The Token Ring buses support two independent Token Rings, each of which can operate at either 4 Mb/s or 16 Mb/s. The Model 3030-04 can support three networks-one Ethernet and two Token Ring-simultaneously.

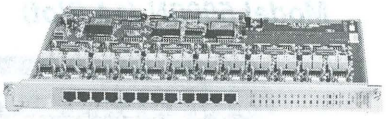
Bay Networks™ (SynOptics) LattisNet Systems 3000 Concentrators



SPECIFICATIONS

NETWORK PROTOCOLS

Ethernet 10 Mbps
Token Ring 4/16Mbps
FDDI 100 Mbps (Model 3000S)

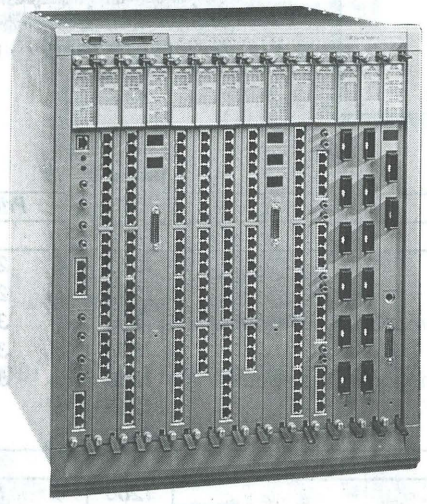


ORDERING GUIDE

Model	Description	Faxline Document #	Price
	3000 Chassis		
3000N	12-slot, Ethernet-Only Chassis	1263	$ 2229.00
3000NT	12-slot, Ethernet & Token Ring Chassis	1263	$ 2615.00
3000NTR	Same as 3000NT w/ redundant power supply & 3100R management module	1263	$ 3875.00
3000S	12-slot, Ethernet, Token Ring & FDDI Chassis	1263	$ 3875.00
3000SRC/R/02	Same as 3000S w/ redundant power supply & 3100R management module	1263	$ 5235.00
3030-01-HW	4-slot Ethernet-only Chassis	1263	$ 729.00
3030-04-HW	4-slot, Ethernet & Token Ring Chassis	1263	$ 965.00
	3000 Ethernet Host Modules		
3301	Ethernet, 8-port Thin coax (BNC)	1260	$ 1740.00
3304-A	Ethernet, 8-port Fiber (ST)	1260	$ 2225.00
3308B	Ethernet, 12-port RJ-45	1260	$ 1355.00
3368	Ethernet, 12-port RJ-45 with LattisSecure	1260	$ 1549.00
	Ethernet Retiming Modules		
3333	Ethernet, Retiming module - Coax (AUI)	1260	$ 729.00
3334-ST	Ethernet, Retiming module - Fiber (ST)	1260	$ 1019.00
	Token Ring Host Modules		
3502B	Token Ring, 12-port Passive STP/UTP (RJ-45)	1258	$ 1060.00
3505B	Token Ring, 12-port Active STP/UTP (RJ-45)	1258	$ 1450.00
	FDDI Host Modules		
3904	FDDI, 4-port multi-mode fiber (MIC)	1261	$ 5330.00
3905	FDDI, 4-port STP (RJ-45 shielded)	1229	$ 3639.00
	Ethernet Internetwork Modules		
3328	Ethernet, 6-port Switching Engine (RJ-45)	1229	$ 3195.00
	Routers/Bridge Modules		
3394	Ethertalk (Localtalk), Router module	1250	$ 3489.00
3800-03	Ethernet, Multimedia Module (Router w/ 3800A)	1250	$ 4160.00
3803	Ethernet, Personality Module for Port Routing (for 3800A routers)	1250	$ 675.00
3806	WAN, 2-port (Serial) Personality Module for Port Routing (for 3800 routers)	1250	$ 1159.00
10328-F	Ethernet to ATM, 12-10BaseT, 1-SONET OC-3 (155Mbps), Switch/MUX	1275	$ 9995.00
	Token Ring Internetwork Modules		
3522A	Token Ring, Local Bridge	1229	$ 4845.00
	Routers/Bridge Modules		
3800A	Multimedia Router (v10.0)	call	$ 5815.00
3800-05	Multimedia Router, Personality Module with support for Token Ring	1259	$ 4645.00
3805-02	Token Ring Router w/ Personality Module for port routing (3800 Routers)	1259	$ 1159.00
	FDDI Internetwork Modules		
3809	FDDI, Personality Module, for FDDI routing	1259	$ 3295.00
	Ethernet Network MGMT Modules		
3313SA	Ethernet, with Advanced Super Agent, 1 AUI	1251	$ 4459.00
3313A-04	Ethernet, with Advanced Agent, 1 AUI	1251	$ 3875.00
3313A-03	Ethernet, with Basic Agent, 1 AUI	1251	$ 2225.00
3314SA	Ethernet, with Advanced Super Agent, Fiber (1 10BASE-FIORL port)	1251	$ 4845.00
3314A-04	Ethernet, with Advanced Agent, Fiber (1 10BASE-FIORL port)	1251	$ 4265.00
3314A-03	Ethernet, with Basic Agent, Fiber (1 10BASE-FIORL port)	1251	$ 2615.00
	Token Ring Network MGMT Modules		
3517SA-08	Token Ring, with Super Advanced Agent, RI/RO (DB-9)	1257	$ 6009.00
3514-ST	Token Ring, with Advaced Agent, RI/RO (DB-9)	1257	$ 3875.00
3513	Token Ring, with Basic Agent, RI/RO (DB-9)	1257	$ 3099.00

Bay Networks™ (SynOptics)
System 5000™ Network Center Hub

Model 5000N (14-Slot)



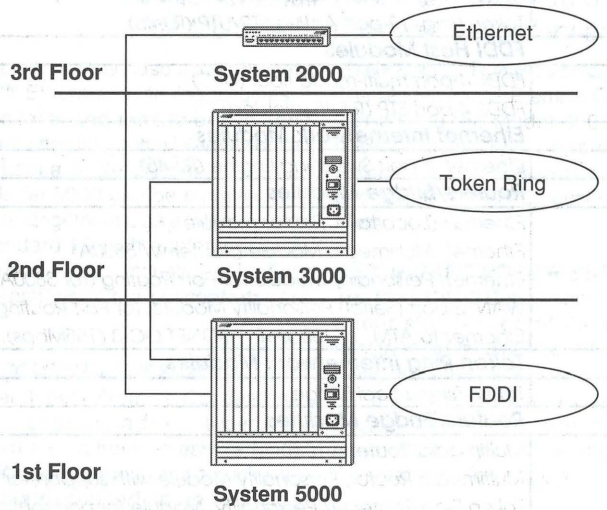
8-Slot Version Available!

FEATURES

- Network Center Platform Designed to Support Structural Ethernet, Token Ring, FDDI and ATM LANs
- Simultaneously Accomodates up to 12 Ethernet, 9 Token Ring and 2 Three-Path FDDI Networks with Extensive Management Features
- Modular Backplane Design Allows for easy Integration of High-Speed Packet and ATM Cell Switching Technologies
- Highly-Reliable Design includes Redundant Power, Cooling and Clocking Systems, Eliminating all Single Points of Failure
- Internal, High-Throughput Common Management Bus Provides Access to All Modules across Hub Backplane to Monitor Network Performance and Control Hub Configuration

Tech. Tip:

Fully compatible with SynOptics' System 3000™ and System 2000™ intelligent hub products. (See pages 16–17)



SynOptics' Model 5000 is the first intelligent hub platform to deliver a structured networking solution for today's legacy networks with a migration path to future LAN technologies. Featuring a highly-flexible backplane architecture, the hub supports multiple 10 megabit per second (Mb/s) Ethernet, 4 and 16 Mb/s Token Ring and 100 Mb/s Fiber Distributed Data Interface (FDDI) networks simultaneously.

The Model 5000 offers 14 slots to hold any combination of System 5000 Ethernet, Token Ring and FDDI host and network management modules. Fully configured, the hub provides a powerful platform for simultaneously supporting up to 12 Ethernet segments, nine Token Rings and five FDDI ring paths with extensive management capabilities. Network managers can perform precise, detailed management operations such as high-performance traffic monitoring and packet and protocol analysis at full line speeds.

In addition, core management capabilities are provided for up to 52 Ethernet and 26 Token Ring networks operating within the hub, providing visibility into network operating conditions. Core management allows network manage's to monitor hub hardware status, control hub configuration and obtain simple network performance statistics.

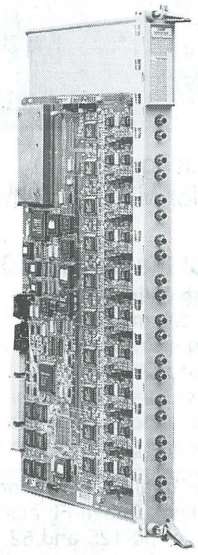
The Model 5000 also provides an open path for integrating emerging technologies that will support future network growth. For instance, the hub is designed to accommodate high-speed packet switching and Asynchronous Transfer Mode (ATM) cell switching capabilities as they become available.

Three versions of the Model 5000 hub are available, each offering different backplane configuration. The Model 5000N supports full IEEE 802.3-compatible Ethernet installations for high-density Ethernet environments. The Model 5000NT is identical to the Model 5000N, with the addition of IEEE 802.5 Token Ring capabilities for mixed Ethernet/Token Ring environments. The Model 5000F is identical to the Model 5000NT, with the addition of an FDDI backplane for complex Ethernet/Token Ring/FDDI environments.

New technologies such as ATM will also be added incrementally by installing a new backplane section, enabling users to invest in a base unit today that can be easily upgraded to satisfy future requirements.

Free Technical Support

Bay Networks™ (SynOptics) System 5000™ Network Center Hub



SPECIFICATIONS

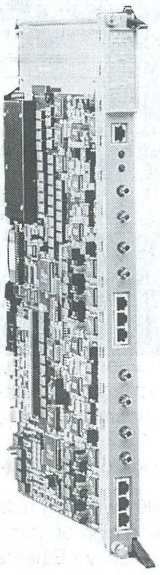
NETWORK PROTOCOLS

Ethernet IEEE 802.3

Token Ring IEEE 802.5 Token Ring Access Method and Physical Layer Specification

FDDI ISO 9314-1 FDDI Physical Protocol (PHY) standard: ISO 9314-3 FDDI Physical Medium Dependent (PMD) standard: ANSI FDDI X379.5 Station Management specification

Standards Support IEEE AUI for connections via 10Base5)
IEEE 802.3 10BaseT
IEEE 802.3 10Base2
IEEE 802.3 FIORL
IEEE 802.5 Token RIng
ANSI FDDI X3T9.5 FDDI
ISO 9314-1 FDDI Physical Protocol (PHY) standard
ISO 9314-3 FDDI Physical Medium Dependent (PMD) standard



ORDERING GUIDE

Model	Description	Faxline Document #	Price
	5000 Chassis & Components		
5000N	14-slot, Ethernet-Only Chassis	1254	$ 2495.00
5005N	8-slot, Ethernet-Only Chassis	1254	$ 1495.00
5000NT	14-slot, Ethernet & Token Ring Chassis	1254	$ 2995.00
5005NT	8-slot, Ethernet & Token Ring Chassis	1254	$ 1795.00
5000F	14-slot, Ethernet, Token Ring & FDDI Chassis	call	$ 3995.00
5001	Power Supply, for 14-slot Chassis	1254	$ 1000.00
5051L	Power Supply, for 8-slot Chassis	1254	$ 700.00
5110	Supervisory Module, for 14-slot Chassis	1254	$ 1000.00
5115	Supervisory Module, for 8-slot Chassis	1254	$ 700.00
	5000 Host Modules		
5304P	Ethernet, 10-port 10BASEF (ST)	1255	$ 4995.00
5307P	Ethernet, 24-port 10BASET (RJ-45) switch with Telco D	1255	$ 4595.00
5308-AF	Ethernet, 16-port 10BASET (RJ-45) -- with AUI and ST	1255	$ 3795.00
5308A	Ethernet, 24-port 10BASET (RJ-45)	1255	$ 3895.00
5378-F	Ethernet, 16-port UTP (RJ-45), 4-port Fiber (ST)	1255	$ 4495.00
5502	Token Ring, 24-port Passive STP/UTP (RJ-45)	1256	$ 3595.00
5505P	Token Ring, 24-port Active-retiming STP/UTP (RJ-45)	1256	$ 4995.00
5575-C	Token Ring, 20-port Intelligent Dual Repeater Cluster, UTP (RJ-45)	1253	$ 3595.00
5904	FDDI, 6-port Multi-mode Fiber (MIC)	1253	$ 7795.00
5905	FDDI, 6-port UTP (RJ-45)	1253	$ 5795.00
	Network Management Modules		
5310A	Ethernet, Network Management Module	1252	$ 4295.00
5310SA	Ethernet, Super Network Management Module	1252	$ 5395.00
5510-06	Token Ring, Network Management Module (with Data Collection Engine)	1252	$ 5995.00
5910S	FDDI, Network Management Module (both A&B connections/networks)	call	$ 10995.00

Bay Networks™
Distributed 5000 Switching Hubs

EXPRESS SOURCE-BOOK FAXLINE
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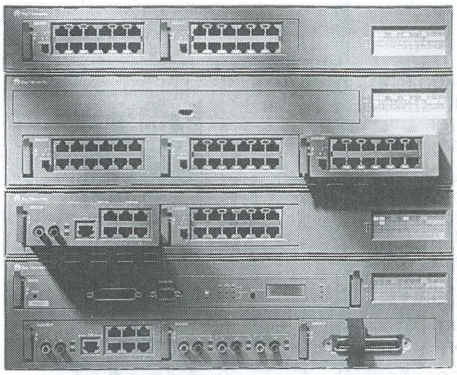


Faxline Document #:1328

FEATURES

- High Performance
- Modular
- Easy and Convenient to Configure
- Mission-Critical Reliability for Mid-Tier Network Centers
- Extends the Functionality of the System 5000 Network Center Hubs to the Wiring Closet.

Distributed 5000 switching hubs from Bay Networks deliver a high-performance wiring closet solution for today's Ethernet networks, combining the convenience and performance of high-end modular hubs with the flexibility and affordability of workgroup solutions. Distributed 5000 Ethernet switching hubs extend System 5000 class features to enterprise wiring closets and mid-tier network centers, delivering a high-performance solution for growing structured networking environments.

Two versions of the Distributed 5000 switching hubs are available, along with a variety of 10Base-T and 10Base-FL host modules and a network management module. The Distributed 5000 product family features both two- and three-slot hub chassis, providing a scalable solution for starting and growing Ethernet wiring closets.

The hub slots, or docking bays, support any combination of Distributed 5000 Ethernet host modules. In addition, the three-slot hub includes a docking bay for a Distributed 5000 network management module, which provides complete Advanced Agent management for all segments in the hub stack. The network management module can also be upgraded to support the Advanced Analyzer agent, which provides full RMON capabilities (RFC 1271 - all nine groups), plus Bay Networks SuperRMON port-to-address mapping feature.

Each Distributed 5000 hub includes three independent local segments, providing tremendous configuration flexibility for particularly high-density wiring closet environments. The hubs also provide up to three cascade segments, which are shared by all hubs in a stacked arrangement.

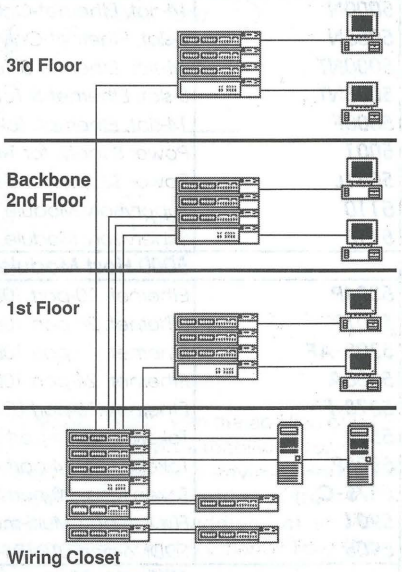
Up to 8 two and/or three-slot Distributed 5000 hubs can be combined in a single system, allowing administrators to incrementally grow their networks as needed. In a maximum configuration, a Distributed 5000 system can support up to 288 Ethernet connections across 27 segments – three local segments per hub, plus the three cascade segments shared by all connected hubs.

DISTRIBUTED 5000 HOST MODULES

Four Distributed 5000 host modules are available, each offering different media support:

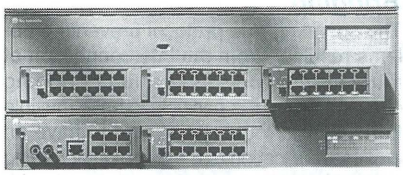
- The 10Base-T Host Module offers 12 RJ-45 modular receptacles to support host connections over Category 3, Category 4 and Category 5 unshielded twisted pair cabling. One port can be configured as either MDI or MDI-X, enabling it to support connections to other hubs with straight-through unshielded twisted pair patch cables.
- The 10Base-T Telco Host Module provides a single 50-pin Telco D-type connector for supporting up to 12 10Base-T host connections over Category 3, Category 4 and Category 5 unshielded twisted pair cabling.
- The 10Base-FL Host Module offers three dual ST-type multimode fiber connectors for supporting 10Base-FL Ethernet connectivity over 50/125 and 62.5/125 ¦m multimode fiber optic cabling.
- The Mixed Media Host Module offers six RJ-45 modular receptacles for supporting 10Base-T host connections over unshielded twisted pair cabling and one dual ST-type connector for supporting 10Base-FL host connections over 50/125 and 62.5/125 ¦m multimode fiber optic cabling. The fiber port can also support a 10Base-FL downlink to a Model 5000 hub in the network center. One additional RJ-45 MDI port supports connections to other hubs using straight-through unshielded twisted pair patch cables.

The Distributed 5000 offers unmatched flexibility for enterprise wiring closets and mid-tier network centers



MULTIMEDIA CONCENTRATORS

One Stop Shopping



Hot Swappable Post Modules

Each Distributed 5000 host module is both hot- and smart-swappable, enabling them to be removed from and inserted into a powered hub without interrupting network operations or losing configuration data. A per-port autopartitioning feature automatically disconnects ports experiencing excessive collisions, long single collisions or jabber input to maintain network integrity. In addition, a per-port automatic polarity detection/correction feature detects and corrects receive data pair signal inversions, ensuring uninterrupted network performance.

A segment selection switch on the modules allows the network manager to preassign all ports to one of the six segments (three local, three cascade) within the hub, or to isolate the modules entirely from the hub backplane.

DISTRIBUTED 5000 NETWORK MANAGEMENT MODULE

The Distributed 5000 Ethernet Network Management Module resides in a three-slot Distributed 5000 hub, where it provides high-performance management capabilities for an entire eight-hub stack. Utilizing a high-speed system management bus (SMB) that spans all connected hubs, the network management module provides comprehensive, simultaneous management and core statistics collection for all 27 segments.

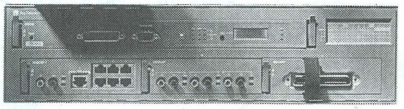
PER-PORT CONFIGURATION SWITCHING

The Distributed 5000 supports a per-port configuration switching feature which enables managers to create software-based workgroups that efficiently allocate available bandwidth, improve network performance, and simplify network moves, additions and changes.

Working with the Optivity LAN architect tool, managers can software-assign each Distributed 5000 port to any of the three local or three cascade segments supported by the hub. Workgroup assignments are maintained by the management software, providing the necessary segmentation without requiring repeated visits to the wiring closet.

By creating and populating workgroups based on logical relationships, not physical location, managers can evenly distribute available bandwidth throughout the network. Per-port configuration switching also improves overall performance by helping managers to microsegment the network at the wiring closet level, relieving congestion by dividing the system into segments with smaller user populations to reduce bandwidth contention.

In highly dynamic environments where changes are common, per-port configuration switching greatly simplifies network moves and additions. If a user changes locations or a new device is added to the network, the manager can make the necessary workgroup assignment at the management console, eliminating the need to visit the wiring closet to recable the network.



Network Management Module

BULLETPROOF RELIABILITY

The Distributed 5000 is designed to provide maximum availability. The hubs include redundant fans, redundant configuration storage, redundant clocks and redundant fiber links as standard options, ensuring the hubs will continue operating even under the most extreme conditions. Redundant network management modules can also be installed to guard against the unlikely event of a primary network management module failure.

Distributed 5000 hubs include an optional redundant power supply unit (RPSU) to provide a backup power source for up to four hubs in a system. The redundant power supply can operate in one of two modes:

- As a backup (secondary) power source to the onboard hub supplies using DC output cables provided. In this mode, the RPSU takes over following the failure of the primary hub's power source.
- As a redundant power source to the hubs using dual AC inputs, in which case the RPSU is powered from two different AC sources.

The redundant power supply can also operate in both modes simultaneously, providing triple redundancy that is highly tolerant of one or even two power source failures.

ORDERING GUIDE

Model 5DN002 ..... $ 845.00
Distributed 5000 multi-segment configuration switch hub with slots for two Distributed 5000 Ethernet host modules. Includes cascade cable for expansion within a Distributed 5000 stack.

Model 5DN003 ..... $ 1095.00
Distributed 5000 multi-segment configuration switch hub with slots for three Distributed 5000 Ethernet host modules and one NMM. Includes cascade cable for expansion within a Distributed 5000 stack.

Model 5DN304P ..... $ 1095.00
Distributed 5000 3-port 10Base-FL Host Module

Model 5DN307P ..... $ 995.00
Distributed 5000 12-port 10Base-T Telco Host Module

Model 5DN308P ..... $ 995.00
Distributed 5000 12-port 10Base-T Host Module

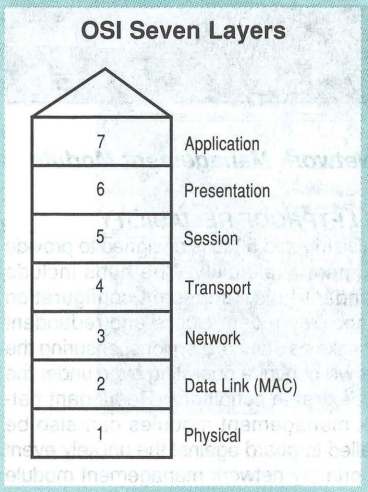
Mode 5DN310 ..... $ 2195.00
Distributed 5000 Network Management Module with sockets for three Data Collection Modules (DCMs)

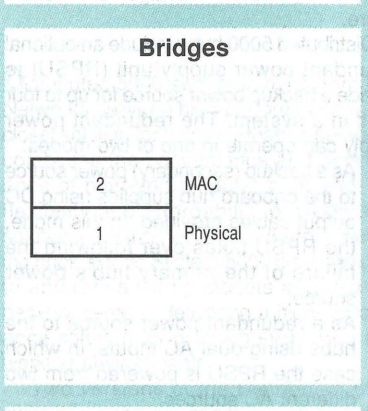
Model 5DN378P-F..... $ 995.00
Distributed 5000 Mixed-media Host Module with 10Base-FL

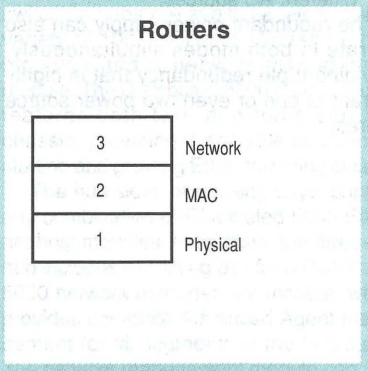
Model 5DNRPSU ..... $ 1695.00
Redundant Power Supply Unit for Distributed 5000. Provides redundant power for up to four units.

Model 5DNN11 ..... $ 1195.00
Data Collection Module (DCM) for Distributed 5000 NMM

A Quick Look at Bridges & Routers







The devices used to interconnect networks are called bridges and routers. These internetworking devices can be hardware, or software-based. Software-based routers and bridges can be part of a server's operating system or can also be installed on standard computers to create dedicated, stand-alone devices. However, software only bridges and routers must depend on the server's internal memory and CPU, which can degrade network performance. For maximum performance, a stand-alone solution is usually the best choice.

Bridges

A bridge operates at the data link layer (layer two) of the OSI architecture. Bridges can be used to connect networks with different addresses or to segment a network (segments having the same network address). When connecting networks with different addresses, a bridge acts as an address filter; it relays data between networks with different addresses based on information contained at the Medium Access Control (MAC) level.

Simple bridges are used to connect networks which use the same physical-layer protocol, and the same MAC and logical link protocols (OSI layers one and two). Simple bridges are not capable of translating between the different protocols.

Other types of bridges, such as transitional bridges, can connect networks that use different layer-one and MAC-level protocols; they are capable of translating then layering frames.

After a physical connection is made (at OSI layer one) a bridge receives all frames from each of the networks it connects and it checks the network address of each received frame. The network address is contained in the MAC header. Bridges examine the MAC header to read the network address and forwards the packet appropriately.

Spanning Tree & Source-Route Bridging

The spanning tree protocol prevents problems resulting from the interconnection of multiple networks. In various bridging circumstances, it is possible to have multiple transmission routes exist, and to have an endless duplication and expansion or routing errors that will saturate the network with useless transmissions, quickly disabling it. Spanning trees are the method used to specify one, and only one, transmission route.

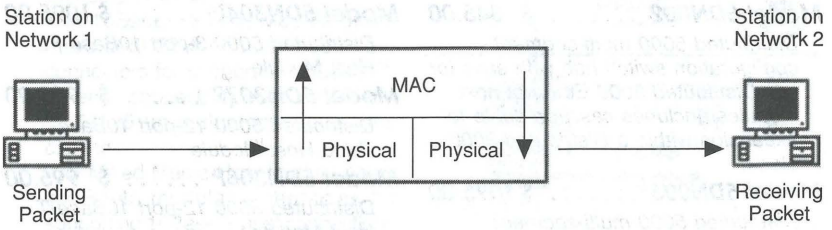
Source-route bridging is the other standard means of determining the path used to transfer data from one station to another. Stations that use source-routing participate in route discovery and specify the route to be used for each transmitted packet. Source-route bridges merely carry out the routing instructions placed into each data packet when the packet is assembled by the sending station. Source-route bridging is important because it is a bridge routing method used on IBM Token Ring networks.

Routers

Routers function at the OSI network layer (one layer higher than bridges). To communicate, routers must use the same network-layer protocol. And, of course, the sending and receiving stations on different networks must either share identical protocols at all OSI layers above layer three, or there must be necessary protocol translation at these layers.

Routers can allow the transfer of data between networks that use different protocols at OSI layers one and two (physical, Medium Access Control, and Logical Link Control). Routers can receive, reformat and retransmit data packets assembled by different layer-one and layer-two protocols. Different routers are built to manage different protocol sets.

For a complete list of internetworking and routing options, please refer to pages 16-21



Increase Network Length and Performance
Ethernet Bridges

Model AT-6870

Faxline Document #:1116

FEATURES

- Self-learning MAC Layer Bridges
- Supports up to 2,000 MAC Addresses in Filter Table
- Two Media Options per Network Segment; Thin (10Base2) or AUI (10Base5)
- Filter at 25,000 PPS, Forward at 12,500 PPS
- IEEE 802.1 Revision D, Spanning Tree Protocol (STP)
- Simple Network Management Protocol (SNMP)

The AT-6870(5) bridges allow two IEEE 802.3 subnetworks to be connected into a single network. Each subnetwork may be IEEE 802.3 Ethernet or thin Ethernet. The bridges transparently forward packets between both networks. Since these bridges operate at the MAC level, all higher level protocols such as TCP/IP, DECnet, and Netware, are passed unaffected.

Many common LAN problems are solved by the Model AT-6870(5). For example, the effective length of a network can be increased by adding a bridge. Moreover, placing the bridges at natural boundaries of the workgroups increases the network performance in each segment. The reliability of a large network can be enhanced through subnetting with the AT-6870(5), which allows heterogeneous subnetworks to be interconnected.

SPECIFICATIONS

SOFTWARE

Features	Compliant with IEEE 802.1 STP specification UDP/IP protocol support Dynamic forwarding table creation SNMP network management agent Power-on diagnostics

POWER REQUIREMENTS

Voltage	110V: 90 to 135 VAC 220V: 180 to 270 VAC
Frequency	47 to 63 Hz
Power	50 watts

PHYSICAL

Dimensions (L x W x H)	17.0" x 9.7" x 2.6" (432 x 247 x 66mm)
Weight	4.4kg (9lb 12.2oz)
Temperature	Operating: 0 to 50°C Storage: -20 to 60°C
Relative Humidity	5 to 80% RHNC
Electrical/ Mechanical Approvals	EMI: FCC, CSA, TUV-2 Safety: UL, CSA, TUV-GS

ORDERING GUIDE

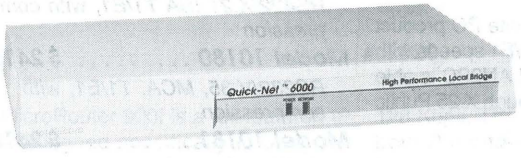
Model AT-6870 . . . . . $ 2350.00
Learning bridge, manual

Model AT-6875 . . . . . $ 2995.00
SNMP Learning bridge, manual

ACCESSORY

Model AT-RKMT3. . . . . $ 40.00
Rack mount kit

Model QN604/B



Faxline Document #:1109

FEATURES

- Choice of Two Connector Types for each Network (AUI or BNC) Switch Selectable
- Choice of Two Models, Basic or Managed (SNMP)
- Filtering Rate of 27,000 PPS
- Forwarding Rate of 14,500 PPS
- Local List Size of 10,000 Entries
- Self-sensing Power Supply, 100-250VAC, 47-63Hz

ORDERING GUIDE

Model QN604/B . . . . . $ 1425.00
Basic bridge

Model QN604/M. . . . . $ 1875.00
Managed bridge, SNMP

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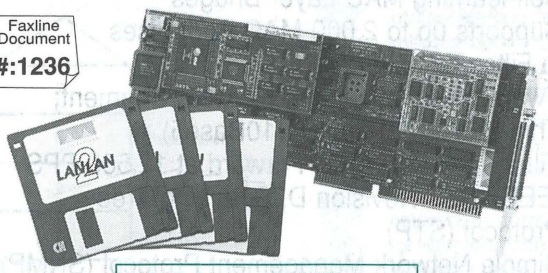
Remote Access Router

Model LAN2LAN

Faxline Document #:1236



Call for availability on MCA version

FEATURES

- Supports Line Speeds up to Full T1/E1 (1.544/2.048Mbps)
- Includes 128K and T1/E1 Data Compression
- Supports Two or Four WAN Ports—up to 64 Connections Per Wide Area Network Interface Coprocessor (WNIC™); Supports up to Six WNICs (24 WAN Ports or 384 WAN Connections)
- Provides Broadcast Suppression (Spoofing)
- Can Interleave Multiple Routing/Bridging Protocols Over the Same Wide Area Link

LAN2LAN Enterprise™ is a high performance, software-based multiprotocol router designed to meet the internetworking requirements of headquarters offices. It can be installed in a dedicated PC, or on multiple NetWare platforms. The LAN2LAN Enterprise routers enables local and remote routing and MAC-layer and source-route bridging when configured for a dedicated PC. When installed on an NetWare platform such as NetWare for SAA, NetWare Connect, of a file server, LAN2LAN Enterprise allows users to interconnect NetWare local-area networks (LANs) without purchasing additional PC hardware.

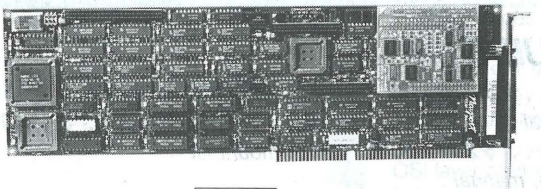
The LAN2LAN Enterprise router is equally useful at central sites with heavy internetworking traffic and at regional offices that require cost-effective wide-area network (WAN) connections, the LAN2LAN Remote Office™ router is designed to easily connect the LAN2LAN Enterprise. WAN ports are easily added in units of two or fours as the internetwork expands, and a NetWare file serve-based router node can be reconfigured at any time as an external router.

ORDERING GUIDE

Model LAN2LAN $3487.00
ISA bus version

Remote PC to LAN Access

LAN2PC



Faxline Document #:1238

FEATURES

- NET 2 (Normes Europeenes de Telecommunications) Certified
- Compliant with CCITT 1988 Recommendations
- Data Compression
- Switched Virtual Circuits (SVCs) and Permanent Virtual Circuits (PVCs)
- Multiple SVCs can be Used Between the Workstation and the Remote Router
- Idle SVCs Automatically Disconnected

LAN2PC provides a high-speed communications path between a single remote workstation and a central LAN. Using LAN2PC, a remote PC can access central-site LAN files, databases, printers, hosts and applications (e-mail, spreadsheet, word processors and more) via either dial-up, dedicated communications lines, or X.25 networks. Additionally, LAN2PC is available with optional data compression, allowing you to take remote workstation performance to new heights.

LAN2PC is the only remote PC product that can communicate at T1/E1 speeds with any PPP-compliant router. LAN2PC is able to support remote users through X.25 Public Data Networks (PDNs)

ORDERING GUIDE

Model 10179 . . . . . $2220.00
RS422/X.21 ISA T1/E1, with compression

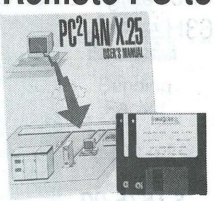
Model 10180 . . . . . $2415.00
RS232/V.35, MCA, T1/E1, with compression

Model 10181 . . . . . $2415.00
RS422/X.21, MCA, T1/E1, with compression

Remote PC to LAN Access Software

Model PC2LAN/X25

Faxline Document #:1237



FEATURES

- Fully Compatible NetWare IPX and TCP/IP ODI and VLM Drivers Allow Monitoring by Any Standard ODI Management Utility
- Compatible with V.42 bis, MNP Compression or V.Fast Modems
- DOS 6.x and Windows 3.x Compatible.

ORDERING GUIDE

Model PC2LAN/X25 . . . . . $ 145.00
1 node license

BRIDGES & ROUTERS

Highest Quality

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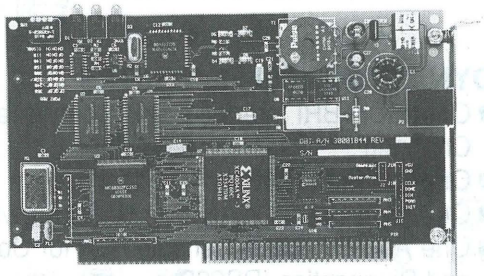
DigiBoard DataFire™ PC ISDN Card

Model 77000314



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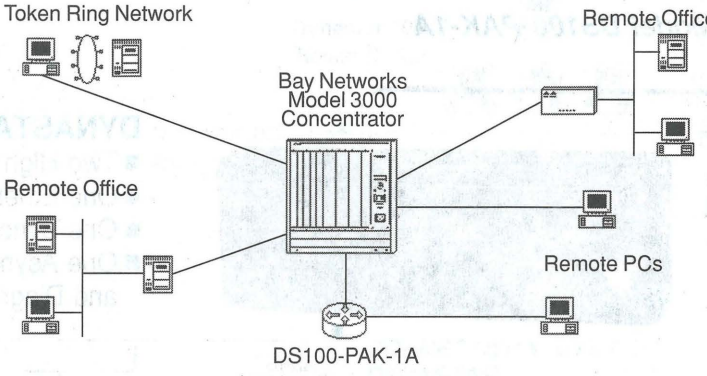
FEATURES

- Supports Two B Channels and One D Channel; B Channel Voice or Circuit-Switched Data Connections
- Supports "Nailed Up" Permanent Circuit-Switched B Channel
- Compatible with 64Kbps, 56Kbps and ISDN Voice Circuit-Switched Calls
- Compatible with All CCIT/ANSI BRI ISDN Central Office Switches
- Connects between ISDN Switches using Digital Dial-Up Voice Lines and Digital Trunking

DigiBoard's DataFire integrates an ISDN terminal adapter/network interface card with a line terminator (NT1) to provide breakthrough simplicity and affordability in high-speed remote LAN connections for individual computer users.

The DataFire installs in an expansion slot of ISA bus PCs and connects directly to an ISDN basic Rate Interface (BRI) phone line. Because there is no need for a line terminator or power supply, installation and maintenance are a snap.



ORDERING GUIDE

Model 77000314 . . . . . $ 595.00
16-bit ISA bus

Ethernet to Internet IP Router

Router 900I

Faxline Document #:1329

FEATURES

- Dial-On-Demand or Dedicated IP Routing for Internet Connection at up to 128Kbps
- Connects to Modems, CSU/DSUs, ISDN TAs
- Supports PPP and Frame Relay
- Thick, Thin and 10Base-T Auto-Switching Ethernet Ports
- Flash ROM Holds Configuration and Operating Software
- Dial Back Security

The MicroRouter 900I is a full-featured IP router designed specifically to bring the power and resources of the Internet to your Ethernet network. The MicroRouter 900I will connect to your Internet Service Protocol (ISP) over a variety of wide area links, including a standard phone line, a leased or switched 56 line, or an ISDN line. Once connected, any user on your network can access the resources of the world's largest computer network.

The MicroRouter 900I comes ready to connect to a thick, thin or 10Base-T Ethernet network. It provides one high-speed RS-232 WAN port, which may be operated asynchronously or synchronously at rates up to 128 Kbps. The MicroRouter 900I supports both Point-to-Point Protocol (PPP) and Frame Relay wide area transport protocols and will interoperate with other PPP and Frame Relay routers.

APPLICATIONS

The MicroRouter 900I provides a flexible, cost-effective method of LAN-to-Internet connection. Through this connection, any network-attached PC or workstation with an IP client software can send and receive e-mail, download research and business documents using the File Transfer Protocol (FTP), join any of thousands of business related newsgroups and discussion lists, and browse the vast amount of information on the World Wide Web.

The MicroRouter 900I can be used in "dial-on-demand" applications in which a connection is established only as required, or in dedicated applications using analog, leased, switched or ISDN lines.

ORDERING GUIDE

Model 900I. . . . . $ 995.00
Ethernet to IP Router

Dynatech Communications
Remote Access Concentrators

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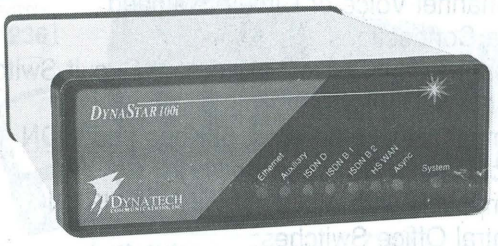
Model DS100I-PAK-1A



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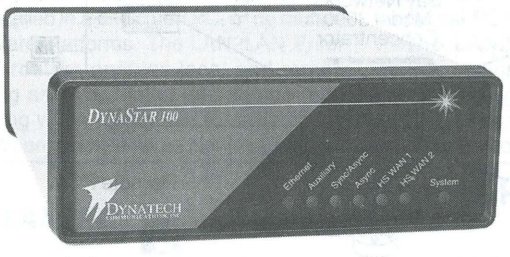
DYNASTAR 100I FEATURES

- One ISDN BRI Interface (2 B Channel and 1 D Channel)
- One Ethernet Port
- One High Speed WAN Port (V.35/X.21/RS232)
- One Asynchronous Console Port for Configuration and Diagnostics (RS232)

Model DS100-PAK-1A



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DYNASTAR 100 FEATURES

- Two High Speed Wan Ports (V.35/X.21)
- One Ethernet Port
- One Synchronous/Asynchronous Port (RS232)
- One Asynchronous Console Port for Configuration and Diagnostics (RS232)

The DynaStar 100 is a multi-tasking, multi-microprocessored platform that provides LAN connectivity over wide area networks (WAN). Its hardware and software modules simultaneously support multiple LAN interfaces, WAN interfaces, and LAN/WAN applications.

The DynaStar 100i adds ISDN capability to the range of functions handled by the DynaStar 100. Six built-in software modules control each of the following applications:

ROUTERS

Provides IP/IPX routing between Ethernet or Token Ring LANs over synchronous point-to-point (PPP) lines, X.25 networks, and frame relay networks.

ETHERNET BRIDGES

As an Ethernet 802.3 bridge, both models provide spanning tree Ethernet-to-Ethernet remote-bridging (IEEE 802.1d) over synchronous point-to-point lines over X.25 or frame relay networks.

X.25 SWITCH AND CONCENTRATOR

Provides an X.25 DTE access line to an X.25 node and an X.25 DCE interface to support X.25 concentration and switching.

X.3, X.28, AND X.29 PAD

Provides X.3, X.28, and X.29 asynchronous PAD service to terminals connected to asynchronous ports and to a LAN workstation using IPX-Out service.

FRAME RELAY ACCESS

Provides an access line to a frame relay node.

ACCESS SERVER

Provides multiple services to and from Ethernet or Token Ring LANs over asynchronous lines or over an X.25 network. Inbound traffic may be asynchronous IPX or IP (SLIP) and Telnet. Outbound LAN workstation traffic is IPX or IP via Telnet.

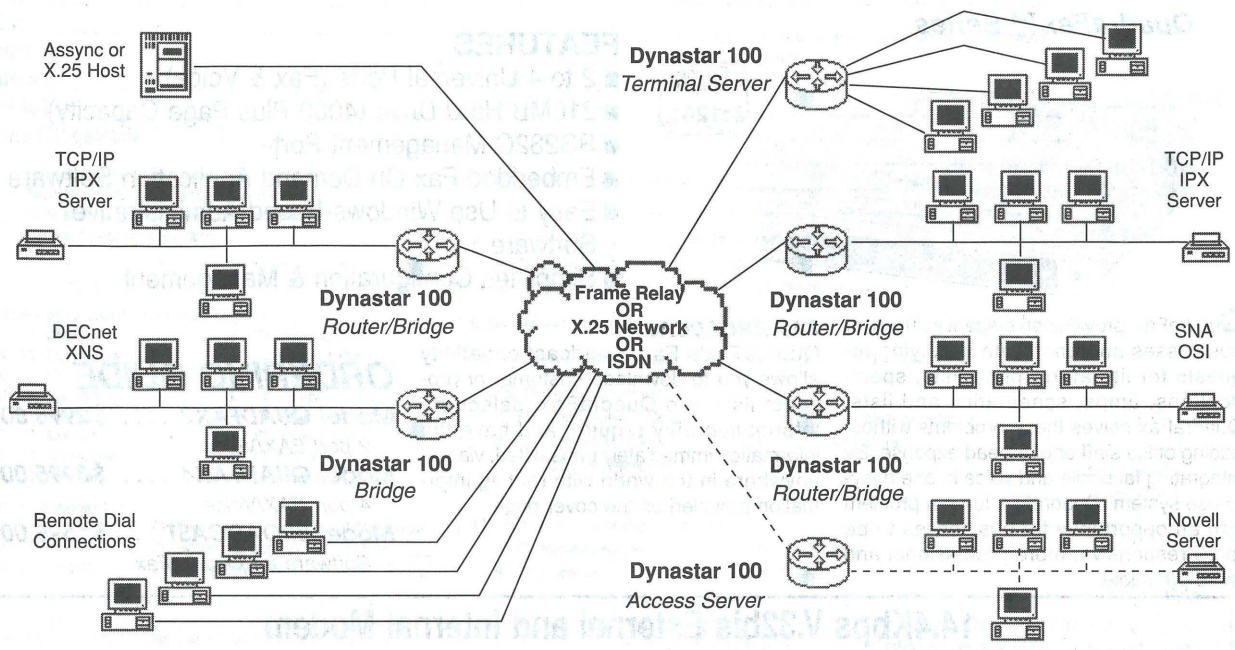
ISDN

The DynaStar 100i provides "dial on demand" LAN interconnections over an ISDN BRI interface (with 2 B channels or 1 D channel). Each B channel can be configured to support one of three WAN protocols, PPP, X.25, or frame relay, at transmission speeds of up to 64Kbps. The ISDN port is configured for dedicated use of the physical line, with a jumper-selectable option to share the line with up to seven other devices, including voice and facsimile devices.

BASE CONFIGURATION

The baseboard has a 25MHz Motorola 68360 RISC-based processor. 1MB of RAM (expandable to 16MB), 2MB of flash EPROM and 128KB of PROM. Configuration information is written into flash EEPROM.

Order Now!



ORDERING GUIDE

	Ports									
	Base Unit	1 ISDN (BRI) 2B, ID Channels	2 T1/E1	2nd Ethernet (AUI/RJ45)	8 Async	4 Sync/Async (RS-232)	Token Ring	ATM (DS-1)	4 Sync/Async (X.21/V.11)	
Model	**With ISDN**									**Price**
DS100I-PAK-1A	x	x								$ 2495.00
DS100I-PAK-1B	x	x		x						$ 3490.00
DS100I-PAK-1C	x	x			x					$ 3490.00
DS100I-PAK-1D	x	x				x				$ 3690.00
DS100I-PAK-1E	x	x					x			$ 3990.00
With T1/E1										
DS100-PAK-1A	x		x							$ 2895.00
DS100-PAK-1B	x		x	x						$ 3890.00
DS100-PAK-1C	x		x		x					$ 3890.00
DS100-PAK-1D	x		x			x				$ 4090.00
DS100-PAK-1E	x		x				x			$ 4390.00
Separately available kits (for the PAK-1A units only)										
DS-ENET				x						$ 1240.00
DS-OCT+					x					$ 1240.00
DS-Q232R						x				$ 1390.00
DS-TOKEN							x			$ 1770.00
DS-ATMDSI								x		$ 2495.00
DS-Q21/11D									x	$ 2020.00

CONNECTIVITY KITS FOR DYNASTAR

All are male connectors

Model DS-ASYNC-CK . $ 50.00
1 Async RJ45 to DB25, includes RJ-69 cable, 10' and DB25 modular adapter

Model DS-232-CK . . . . . $ 50.00
1 Sync includes 1 DB15 to DB25 conversion cable, 10'

Model DS-V35-CK . . . . $ 150.00
1 Sync includes 1 DB15 to 34 pin Winchester conversion cable, 6'

Model DS-V11-CK . . . . $ 50.00
1 Sync includes 1 DB15 to DB9 pin conversion cable, 10'

Model DS-10BASET-CK. $ 50.00
10-BaseT Level 5 RJ-45, 14' cable straight thru

Fax Servers & Modems

QuadraFax™ Series

Faxline Document #:1241

FEATURES

- 2 to 4 Universal Ports (Fax & Voice)
- 210MB Hard Drive (4000 Plus Page Capacity)
- RS232C Management Port
- Embedded Fax On Demand Application Software
- Easy to Use Windows-Based Administrative Software
- Simplifies Configuration & Management

QuadraFax provides an elegant solution for businesses burdened with satisfying requests for literature, price lists, specifications, amps, schematics and lists. QuadraFax solves these problems without adding office staff or overhead expense. By integrating facsimile and voice in one easy-to-use system, QuadraFax turns a problem into an opportunity for businesses to be more responsive, more professional and more profitable.

FAX BROADCAST

QuadraFax's Fax Broadcast capability allows you to download customer or prospect lists into QuadraFax, select the information they require, and have the information immediately transmitted, via fax, anywhere in the world with routing information provided on the cover page.

ORDERING GUIDE

Model QUADFAX2 .... $2995.00
2 port FAX/Voice

Model QUADFAX4 .... $3995.00
4 port FAX/Voice

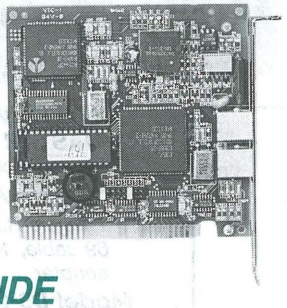
Model BROADCAST ... $ 595.00
Software for QuadraFax

14.4Kbps V.32bis External and Internal Modem

Model M144IW

Faxline Document IW – #:1057

Faxline Document EW – #:1058



FEATURES

- Communicate with Any Group III Fax Machine Across the World
- Complies with Class 1 & 2 Fax Commands
- Supports the Following Send and Receive Fax Modes:
  - V.17 (14,400bps)
  - V.27ter (4800/2400bps)
  - V.29 (9600/7200bps)
  - V.21 Channel 2 (300bps)

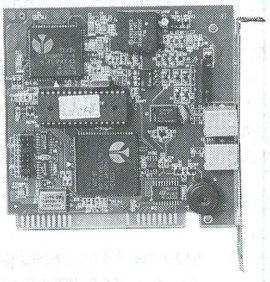
ORDERING GUIDE

Model M144IW ..... $ 115.00
Internal Modem, Cable, adapters, manual and software

Model M144EW ..... $ 149.00
External Modem, Cable, adapters, manual and software

V.34 28,800bps Internal Modem

Model MV34I



FEATURES

- Supports V.34 & V.Fast for Data Communications
- Compatible with Popular Communication Software
- Complies with Class 1 & Class 2 Fax Commands
- Communicates with any Group 3 Fax Machine Across the World

The Model MV34I V.34 28,800bps internal modem meets the new international standard and provides the highest standard speed and exceptional data transmission over an analog phone line. Capable of transmitting at speeds 100% above V.32bis modems, the MV34I is ideal for applications requiring shorter connect times, faster data rates and delivery of larger data files. The V.34 28,800bps modem is feature-rich, fully Hayes compatible, and is backward-compatible with V.Fast Class (V.FC), as well as lower speed V.32bis, V.32 and V.22bis modems. It installs in minutes, and as an added bonus, included is a full-featured Fax and Data Communication software package for Windows.

ORDERING GUIDE

Model MV34I ..... $ 279.00
Internal modem, software, manual, phone cable

Model COURIER-28/E .. $ 595.00
External Modem, software, manual, phone cable

Model COURIER-28/I .. $ 545.00
Internal Modem software, manual, phone cable

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3. ___ Please send me the ***Communications Source-Book***
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5. What is your industry? *(Please check only one)*

- **A** ☐ Chemical
- **B** ☐ Food & Beverage
- **C** ☐ Electronics
- **D** ☐ Government
- **E** ☐ Machinery
- **F** ☐ Military
- **G** ☐ Mining & Metals
- **H** ☐ Petroleum
- **I** ☐ Pharmaceutical
- **J** ☐ Plastics & Rubber
- **K** ☐ Pulp & Paper
- **L** ☐ Services
- **M** ☐ Telecommunications
- **N** ☐ Transportation
- **O** ☐ Utilities
- **P** ☐ Other _____

6. In my business I am:

- **A** ☐ End User
- **B** ☐ OEM
- **C** ☐ Consultant
- **D** ☐ Contractor
- **E** ☐ System Integrator
- **F** ☐ Software Developer
- **G** ☐ Manufacturer
- **H** ☐ Other_____

_____

7. In the past, who have you purchased the following products from?

A. Industrial PC's: _____

_____

B. I/O Cards: _____

_____

C. Scientific/Engineering Software: _____

_____

8. What is your Total Budget for PC Products this year?

- **A** ☐ Up to $5,000
- **B** ☐ $5,001 - $20,000
- **C** ☐ $20,001 - $50,000
- **D** ☐ $50,000 and over

9. My product needs are: **A** ☐ Immediate **B** ☐ 3 - 6 months **C** ☐ Future

10. Please have an Aplication Sales Engineer call me: ☐ Check here

11. PC Products of Interest:

- **A** ☐ Analog Digital I/O Cards
- **B** ☐ Engineering Software
- **C** ☐ Local Area Networking
- **D** ☐ Rack Mounted Computers
- **E** ☐ PC Accessories
- **F** ☐ Other _____

_____

12. My role in purchasing Products is:

- **A** ☐ Recommend/Specify
- **B** ☐ Authorize
- **C** ☐ Purchase
- **D** ☐ None

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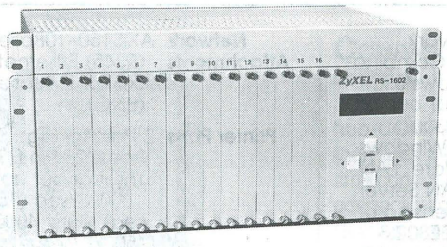
Model RS-1602



FEATURES

- The Rack Holds up to 16 Model 1496R Modems
- Built-in LCD Panel for Control & Monitoring
- Supports 2-wire Dial-up and 2/4-wire Leased Lines
- Optional Network Management System can Control & Monitor up to 255 Racks

Faxline Document #:1242

NEW!

CENTRAL CONTROL AND MONITORING

A 4-line by 20-character LCD display menu control panel is on the rack chassis with four directional key pads. Every modem card's settings can be viewed, changed, and saved by the panel operation. Every modem card's operation can also be under panel control. Dialing, going on/off hook, and doing tests all can be initiated from the panel. The panel can also be hooked to any modem card in the rack to monitor the card's receiving line condition. The control card stores every modem card's settings and will automatically configure any newly replaced card to the correct settings.

1496R FAX/MODEM CARD

The 1496R supports 14,400bps CCITT standards of V.32bis and V.33. For lower speeds it also supports V.32, V.29, V.27ter, V.22bis, V.22, V.23, V.21, BELL 212A, and BELL 103 at speeds of 9,600, 7,200, 4,800, 2,400, 1,200, and 300bps. The Model 1496R supports both asynchronous and synchronous operations on 2/4-wire leased or 2-wire dial-up lines. Implementing both V.42bis and MNP-5 data compression protocols, the 1496R's asynchronous communication throughput can reach as high as 76,800 or 57,600bps error free. For fax communication, G3 fax send/receive capability is built-in with Class 2 fax command set implemented. Including the CCITT V.17 fax transmission standard, the 1496R supports fax transmission speed up to 14,400bps. Fifteen LED status indicators on every card's front panel give a complete monitoring of the card's operation.

NETWORK MANAGEMENT SYSTEM

The Network Management System (NMS) is a PC based system. Up to 255 racks can be linked together under one PC station's control and monitoring. NMS is optional and is supported by the control card. The NMS interface is built-in on every rack's back panel.

SPECIFICATIONS

RS-1602 RACK

Capacity	1 to 16 1496R fax/modem cards
Front Panel Control	20 character x 4 line LCD display 4-key menu control Configuration setting and parameter checking Operation control Line condition monitoring
Rear Panel	16, DB25S connectors for DTE connection 16, 8-pole terminal blocks for 2/4-wire leased line or dial-up line 2, RJ11 interface jacks for NMS
Power Supply	110 or 220VAC ±15% 50/60Hz 100watts total load
Dimension (W x H x D)	19" x 7" x 12" (483 x 178 x 305mm)

1496R MODEM CARD

Compatibility	V.33, V.32bis, V.32, V.29, V.27ter, V.22bis, V.22/BELL 212A, V.23, and V.21/BELL 103
LED Status Indicators	PWR, TST, ERR, TXD, RXD, CD, DTR, DSR, RTS, CTS, OH, HS, AA, SQ, and LL
Manual Switches	Voice/Data toggle and Answer/Originate mode setting
Transmit Level	-9 or -10dBm permissive for dial-up line 0 to -27dBm for leased line
Receive Sensitivity	-43 dBm
Asynchronous Data Format	8, 9, 10, or 11-bit character
Operation Modes	Auto-dial/answer Manual originate/answer
Dialing Type	Tone/Pulse dialing
Call Progress Monitoring	Dial tone, busy, and ringback detection
Line Status Monitoring	Signal-to-noise ratio Receive signal level Frequency offset Phase jitter Retrain log Carrier loss log
Error Control	MNP4 & V.42
Data Compression	MNP5 & V.42bis
Flow Control	XON/XOFF or RTS/CTS
Configuration Settings	Software or central panel LCD menu programmable Non-volatile memory storage
Diagnostic Modes	Model full self-test Analog loopback (with self-test) Remote digital loopback (with self-test) Digital Loopback
Command Set	Extended AT command set
G3 Fax	Send and receive V.17 14,400bps transmission rate EIA Class II fax command set
DTE Interface	EIA-232D/V.24 Speed: 300bps to 76.8kbps

ORDERING GUIDE

Model RS-1602 . . . . . $ 1249.00
Rack chassis

Model 1496R . . . . . $ 729.00
Rackmount modem + 2 Fax Software

Model RS-1602/NMS . . $ 765.00
Network management software

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2-Port for Workgroups

Model AXIS150

Faxline Document #:1243

ORDERING GUIDE

Model AXIS150 . . . . . $ 399.00
Multiprotocol Ethernet print server for Workgroups (RJ-45)

Model AXIS152 . . . . . $ 399.00
Multiprotocol Ethernet print server for Workgroups (BNC)

SPECIFICATIONS

Logical Connections Ethernet Network, running any Combination of Windows 3.x, Windows for Workgroups 3.x, Windows95, Windows NT 3.x, NetWare, LAN Manager, LAN Server. Automatic Sensing of IEEE802.2, IEEE802.3, SNAP and Ethernet II Frame Types.

Network Attachments AXIS150–10BaseT (RJ45) Ethernet AXIS152–10Base2 (BNC)

Printer Ports 2 Parallel High Speed Ports, 25 Pin DSUB. Throughput up to 1200kB/sec (150kB/sec), Burst 4000Kbps (500kB/sec)

Hardware 32 bit RISC CPU, 512Kbyte Flash Memory, 128Kbyte RAM Memory

Multi-Protocol Ethernet Print Server

Model NPS530

Faxline Document #:1244

RISC – Faxline Document #:1212

ORDERING GUIDE

Model NPS530E . . . . . $ 395.00
Multiprotocol Ethernet pocket server, 10BaseT (RJ45)

Model NPS532E . . . . . $ 395.00
Multiprotocol Ethernet pocket server, 10Base2 (BNC)

Model NPS550RISC . . . . $ 595.00
RISC Based, Multiprotocol Ethernet print server, 10Base2 (BNC) and 10BaseT (RJ45). 2 parallel ports, 1 serial port RS232C

SPECIFICATIONS

Network Management SNMP-MIB II Compliant, Private Enterprise MIB Included

Logical Connections Ethernet Network, Running any Combination of TCP/IP, NetWare, Windows NT, LAN Manager, LAN Server and Apple EtherTalk.

Attachments NPS530 10BaseT (Twisted Pair) Ethernet
NPS532 10Base2 (Thin) Ethernet
NPS550RISC Both 10BaseT and 10Base2

‡Logical Printers A Logical Printer is an Advanced Device Driver Acting in between the Network and the Printer. Axis NPS530/532/550RISC has a set of 8 Fully Programmable Logical Printers

Parallel Printers Centronics Standard IEEE1284 Bidirectional Parallel Port

‡ Tech Tip:

The logical printers are useful for running different printer emulations, printing from a multi-host environment and selecting multiple bins/form sizes. The logical printer drivers can be programmed to perform automatic ASCII to Postscript conversion, string before or after a job, string substitution and character set conversion

Multi-Protocol Token Ring Print Server

Model NPS650

Faxline Document #:1245

The NPS650 connects your printers anywhere on a token ring network, allowing all network users access to shared printer resources

ORDERING GUIDE

Model NPS650 . . . . . $ 795.00
Multiprotocol Token ring print server

SPECIFICATIONS

Network Management SNMP-MIB II Compliant, Private Enterprise MIB Included

Logical Connections Token Ring Network, Running any Combination of TCP/IP, NetWare, Windows NT, LAN Manager and LAN Server, LLC IEEE802.2, MAC IEEE802.5. Early Token Release Supported for 16Mbps

Attachments Media Type 1/DB9/STP and Type 3/RJ45/UTP. Support for 4 and 16Mbps Networks

‡Logical Printers Logical Printer Concept gives you a Set of Eight Fully Programmable Logical Printer Drivers that Correspond to Each of the Three Printer Ports Available

Parallel Printers 2 Parallel Ports

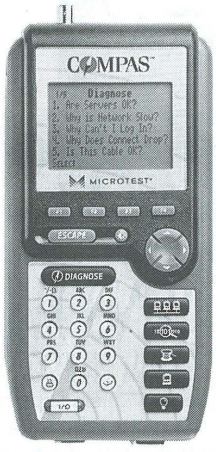
Serial Printer 1 Ser. Port RS232C

Highest Quality

Portable LAN Testers

Microtest

Model COMPAS



Faxline Document #:1246

COMPAS attaches anywhere on your network. It doesn't matter whether it's attached to a fileserver, workstation or hub-COMPAS identifies the connections, then runs the appropriate tests. There is no time consuming configuration or setup. If the connection changes during a test, COMPAS readjusts and starts the test again.

COMPAS focuses on key problems with your network, eliminating the need to examine the details of every test. Its data sensitive ASSIST explains test results and suggests how to repair your network

COMPAS's revolutionary NetTap enables you to insert COMPAS between a fileserver or workstation and the hub. With NetTap, COMPAS can monitor traffic and errors between any network node and the hub

SPECIFICATIONS

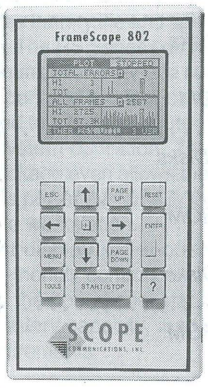
NetWare	Frame Types: 802.2, 802.3, Ethernet II, SNAP Ping: IPX, IP
Connections	BNC, IEEE802.3 (Ethernet) Compatible 2 RJ45, 10BaseT (Ethernet) Compatible Automatic Selection of BNC and RJ45 Connectors Automatic Configuration of Hub and Workstation Pairs (TX-RX) NetTap RJ45 Circuitry allows Insertion Between Hub and Station
Protocols Recognized	IPX, TCP/IP, ARP, XNS, VINES, DECnet, LAT, AppleTalk I and II, ISO

ORDERING GUIDE

Model COMPAS $4995.00
Handheld LAN Tester w/NiCAD battery charger

Scope Communications

Model FRAMES-E



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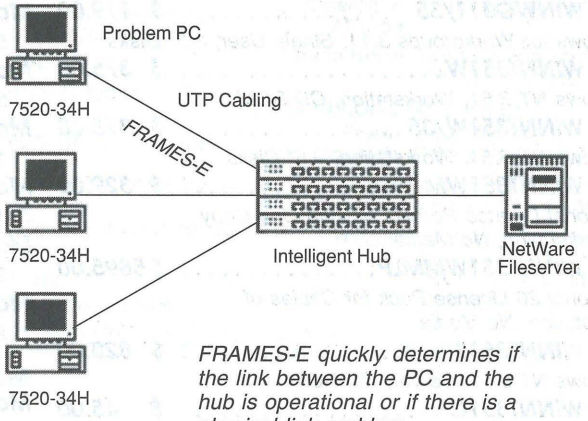

FRAMES-E quickly determines if the link between the PC and the hub is operational or if there is a physical link problem.

The FrameScope addresses the key troubleshootig problems that face LAN managers today. It quickly pinpoints problems, without requiring a protocol analyzer and without wading through lengthy manuals.

Optimized for LAN technical staff on the run and under pressure, the FrameScope fits in the palm of your hand, leaving your other hand free to connect and disconnect cables. Battery operated and with a backlit screen, it travels well behind desks and in cramped, dark wiring closets.

The FrameScope immediately warns of major link faults between stations, walljacks and hubs. A 10BaseT link fault test is continuously active anytime FrameScope is attached to the network, instantly generating an alert when there is a problem with the physical link.

In token ring environments, FrameScope can detect weak signal conditions, beaconing rings and error domains, as well as perform lobe integrity and jitter tolerance tests.

ORDERING GUIDE

Model FRAMES-E. $3750.00
*For Ethernet **ONLY***
Model FRAMES-TR. $3750.00
*For Token Ring **ONLY**, (4/16Mbps)*
Model FRAMES-ETR. . . . $4750.00
*For **BOTH** Ethernet and Token Ring, (4/16Mbps)*

TESTERS

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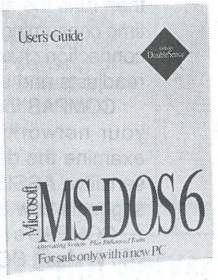
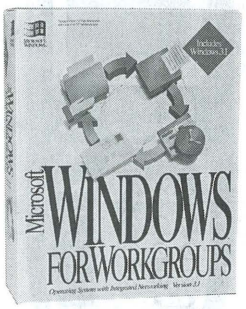
Model OS/2-3.0/35 ..... $ 129.00
OS/2, WARP, 3.5", Single License





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Model WIN95/35 ..... $ 219.00
Windows 95, Single User, 3.5" Disk

Model WIN95U/CD ..... $ 119.00
Windows 95 Upgrade, Single User, CD-ROM

Microsoft Operating Systems sold as part of a Complete System ONLY!

WINDOWS

Model WINWG311/35 ..... $ 119.00
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Model WINNT351W ..... $ 375.00
Windows NT 3.51, Workstation, CD-ROM

Model WINNT351W/35 ..... $ 375.00
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Model WINNT351WMMLP $5895.00
Additional 20 License Pack for Copies of Workstation, No Media

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Windows NT 3.51, Server, CD-ROM

Model WINNT351C ..... $ 45.00
Windows NT 3.51, Single Client License. Required for a Node to access a Windows NT 3.5 Server

Model WINNT351C20 ..... $ 679.00
Windows NT 3.51, 20 Client License Pack.

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Model LANT5012W $1429.00
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Model NTWR3125/35 ..... $1095.00
5 User Netware 3.12, 3.5" Disks

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25 User Netware 3.12, 3.5 Disks

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25 User Netware 3.12, CD-ROM

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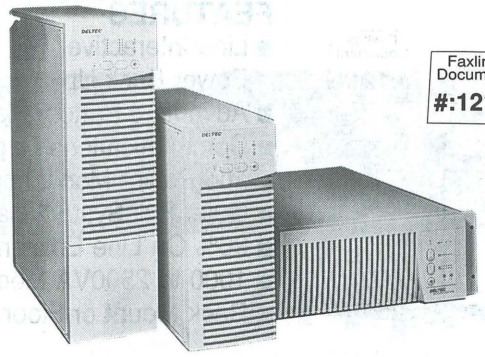


Faxline Document #:1210

FEATURES

- Advanced Battery Management
- Dual Conversion On-Line Technology
- Static Bypass Switch Standard
- Power Isolation
- Remote Emergency Power Off
- UPS Code II Compliant

The PowerWorks RS series Uninterruptible Power System is designed for mid-sized computer networks and other sensitive electronic equipment. The RS series provides quality power protection in a range from 2.1 to 6KVA and in stand alone as well as rack mounted configurations. Using Dual Conversion On-line Technology, this system is a true on-line UPS that delivers excellent voltage regulation, a bidirectional filter and extremely low input current distortion. Further, the RS Series assures quiet operation along with powerful performance.

The low profile cabinet has the smallest footprint available anywhere in its power range. This feature-rich UPS comes standard with Advanced Battery Management that increases battery life and speeds up the charge time. The RS Series comes standard with a communication interface consisting of an RS-232 port and a 6 foot cable that can be connected to a host computer to monitor the entire system operation. The LanSafe Software package even allows the testing of all RS Series power systems in the network from a single workstation.

The front display panel offers sophisticated user-friendly controls and indicators that monitor the operational status, AC line condition, battery capacity, load level, and service requirements.

SPECIFICATIONS

ELECTRICAL INPUT

Power Ratings 2.1, 3.1, 5.0 and 6.0KVA

Voltage 120VAC Nominal for 2.1/3.1KVA; 120/208 or 120/240VAC Nominal for 3.1/5.0/6.0KVA; -27% to +22%, Auto-configurable

Frequency 50/60Hz, 13Hz, Auto-Sensing

Power Factor 0.99 Active Correction

ELECTRICAL OUTPUT

Voltage 120VA Nominal for 2. 1/3.1KA
120/208 and 120/240VAC Nominal for 3.1/5.0/6.0KVA

Regulation 12%

Efficiency >94% @ Typical Full Load

Overload Rating 300% of Full Load for 10 Cycles
150% of Full Load for 30 Seconds
125% of Full Load for 20 Minutes

INTERNAL BATTERY

Type Valve Regulated, Sealed, Lead Acid

Backup Time 10-15 Minutes @ Full Load (Standard Internal Battery Pack)

Recharge Time <3 Hours to 90% Capacity
8-24 Hours to 100% Capacity

PHYSICAL

Operating Temperature 0 to 40° C (Recommended 25° C Operation for Maximum Battery Life)

Operating Humidity 0 to 95% RHNC

Operating Altitude To 10,000ft (3000m)

Audio Noise <49dB @ 45% Load @ 25° C @ 1 meter

DIMENSIONS (W x H x D)

Tower Cabinets 6.8 x 16 x 23" (17.2 x 40.6 x 58.4mm)

Rack Cabinets 17.5 x 6.8 x 23" (44.5 x 17.2 x 58.4mm)

Weight Dependent on Internal Battery Configuration (KVA/Backup Time Ratings)

ORDERING GUIDE

STANDALONE MODELS

Model RST21NET $2650.00
2.1KVA, 120/120VAC In/Out, 125lbs

Model RST31NET $3020.00
3.1KVA, 120/120VAC In/Out, 135lbs

RACK MOUNT MODELS

Rack Mount Chassis Include Rack Mounting Ears — Cabinet/Rack Mounting Hardware, i.e. Angle Brackets, Are User Provided.

Model RSR21NET $2850.00
2.1KVA, 120/120VAC In/Out, 135lbs

Model RSR31NET $3230.00
3.1KVA, 120/120VAC In/Out, 140lbs

FACTORY INSTALLED OPTIONS

Model RS30PZ . . . . . $ 350.00
Mechanical Bypass Switch

Model RSSB . . . . . $ 150.00
Start without AC on Battery

Additional Models Available!

ADDITIONAL BATTERY UNITS

Up to Three Battery Units May be Added to Chassis in Daisy Chain to Increase Battery Backup Time.

Model RS3RP2T . . . . . $ 995.00
Additional Battery Unit for Standalone Chassis

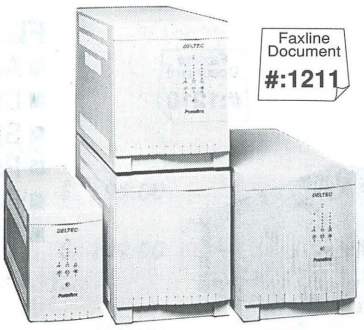
Model RS3RP2R . . . . . $ 995.00
Additional Battery Unit for Rack Mount Chassis

Deltec
Line Interactive UPS

EXPRESS SOURCE-BOOK FAXLINE
1-800-677-7329
Receive a detailed FAX within Minutes!
FAX

The PowerRite Pro UPS is compact quiet and easy to install and operate. Advanced Battery Management (ABM) prolongs battery life and speeds recharge time to give you maximum reliability. ABM also gives you up to 60 days warning prior to the end of useful battery life!

The PowerRite Pro UPS includes an RS-232 port which allows the unit to report its operational status to a host computer. The PowerRite Pro is also fully compatible with FailSafe and LanSafe UPS monitoring software packages.



Faxline Document #:1211

FEATURES

- Line Interactive Power Back Up
- Advanced Battery Management
- Communications Capabilities and Power Monitoring
- Quiet Full System Back Up
- 96% On Line Efficiency
- 1000 to 2500VA Models
- Rack Mount or Floor Mount

SPECIFICATIONS

ELECTRICAL INPUT

Voltage User Selectable On-Line Voltage Range

Power Levels 1000 to 2500VA (2200VA Stand Alone)

On-line Efficiency 96%

On-line Regulation -10%, +6%

Battery Type Sealed, Maintenance Free, Lead-acid

Battery Charging 3 to 6 Hours for Full Charge

Battery Monitoring Advanced Monitoring for Earlier Failure Detection and Warning

Backup Time 7 to 20 Minutes at Full Load; 12 to 40 Minutes and More with Typical Partial Load Depending on Model.

INDICATORS AND CONTROLS

Serial Communications RS-232 Port for Communications

Contact Closures Input Failure, Low Battery

PHYSICAL

Operating Temperature 32 to 104° F (0 to 40° C)

Operating Humidity 0 to 95% RHNC

Conformance Standards IEEE446, NEMA PE1, ANSI C62.41, FCC Class B, IEC 801-146, NSTA

Safety Standards IL 1778, CSA C22.2, VDE

ORDERING GUIDE

Additional Models Available!

STAND ALONE MODELS

Model PRA1000 ..... $ 699.00
1000VA, 7-10Min Backup, 120/120VAC In/Out, 57lbs

Model PRA1500 ..... $ 879.00
1440VA, 7-10Min Backup, 120/120VAC In/Out, 57lbs

Model PRA2000 ..... $ 1499.00
*1920VA, 7-10Min Backup, 120/120VAC In/Out, 96lbs**

*Includes Additional Battery Box Weight of 65lbs

RACK MOUNT MODELS

Model PRR1500A ..... $ 1079.00
1440VA, 10Min Backup, 120/120 In/Out, 100lbs

Model PRR1501A ..... $ 1479.00
1440VA, 20Min Backup, 120/120 In/Out, 150lbs

Model PRR1502A ..... $ 1879.00
1440VA, 40Min Backup, 120/120 In/Out, 175lbs

Model PRR2000A ..... $ 1679.00
1920VA, 10Min Backup, 120/120 In/Out, 150lbs

Model PRR2001A ..... $ 2079.00
1920VA, 20Min Backup, 120/120 In/Out, 175lbs

OPTIONS

Model PRR-RMK ..... $ 179.00
Rack Rails & Hardware to Mount PRR Models in Cabinet

Power Monitor Software for UPS

LanSafe III and FailSafe III software provide two methods for monitoring the performance and availability of your system's backup power. Both packages are fully operational with either the Deltec On-line or Line Interactive UPS systems. LanSafe III is designed for network operations while FailSafe III provides similar power management capabilities for stand-alone PCS.

Faxline Document #:1213

ORDERING GUIDE

Model LS30S2 ..... $ 99.00
Network Monitoring for OS/2 V2.0, 2.1. LAN Manager and LAN Server Required

Model LS3NDW ..... $ 99.00
Network Monitoring for Novell NetWare 2.15-4.02, DOS 3.3-6.2, and Windows 3.0-3.11

Model LS3NT ..... $ 99.00
Network Monitoring for Windows NT 3.1-3.5

Model FS30S2 ..... $ 89.00
Stand-alone Power Monitor for OS/2 2.0-2.1, 3.5" Disks

FEATURES

- Stand-alone and LAN/WAN Packages
- UPS Code II Compliant
- Monitor One or All UPS on Net
- Most NOS supported

Model FS3WIN ..... $ 69.00
Stand-alone Power Monitor for MS-DOS 3.3-6.2, Windows 3.0-3.11

Model FS3NT ..... $ 89.00
Stand-alone Power Monitor for Windows NT 3.1-3.5

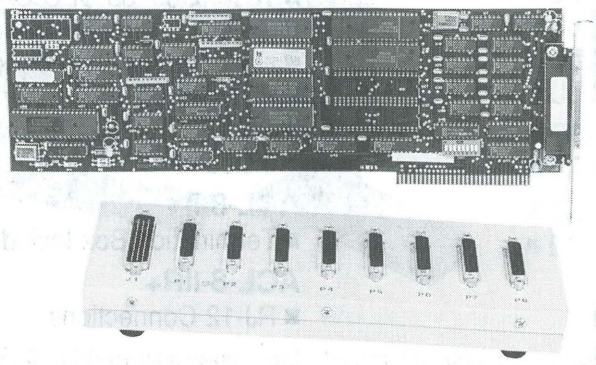
Additional Models Available!

UPS

One Stop Shopping

4/8 Port Adapter
with Co-Processor

Model ACL-8



FEATURES

- 4 or 8 Ports
- RS232 and RS422
- On-Board 8 Mhz 8088
- 32K or Program Memory
- 16K of EPROM Space
- 64K of Dual-Port RAM
- DOS & Windows Drivers Included

The ACL (Advanced Communications Link) is an intelligent communications server with its own on-board processor and memory. The ACL occupies a single slot in a PC/XT/AT or compatible computer and is provided with an external termination panel for connecting the communication lines. The ACL-4 and ACL-8 provide 4 and 8 RS232 ports respectively. RS422 communications are optionally available with an alternate termination panel.

PROCESSOR

The ACL provides an on-board 8088 processor operating at 8Mhz, 32Kbytes of scratch-pad RAM as well as 16K of EPROM space is provided for the communications program. An additional 64K bytes of dual-port RAM is provided for buffering incoming and outgoing data. A memory arbitration scheme is provided allowing both the PC and the ACL to access the dual-port RAM without contention.

DRIVERS

The ACL is not mapped as a DOS COM port allowing COM1 and COM2 ports to reside in the system with the ACL boards. A DOS driver is provided on disk which configures the ACL for use as a buffered interface. The 64K of dual-port RAM can be allocated in user defined sizes to buffer each of the communications ports. Pointers are maintained indicating beginning and end of each buffer as well as the next location to read from or write to.

A Windows driver is also provided, but it will only support one 8-channel card because of Windows limitations.

SPECIFICATIONS

ACL-4, ACL-8

No. of Channels	4 or 8
Interface Control Lines	RTS, CTS, DTR, DSR, DCD, RI per EIA RS232-C-DTE configuration (RS-422 option available)
Communications Speed	50 to 38.4K baud, programmable
I/O Channel Address	4 settings via DIP switch
Interrupts	1 of 6 levels via DIP switch
Number of Boards per System	4 boards, 32 ports max.
Interrupt Sources	Transmit Register Empty Received Data Available Receiver Line Status Modem Status
On-Board Microprocessor	8088 with 32K RAM 16K EROM 64K Dual Port Data RAM
Memory Map Locations	A0000, C0000, D0000, E0000

ACL-8-MC

Number of Channels	8
Interface Control Lines	DTR, RTS, CTS
Communications Speed	75 to 38.4K baud, programmable
I/O Channel Address	Installation File, P.O.S. (@67E1.ADF) Microchannel Bus
Interrupts	1 of 8 levels or disable P.O.S.
Memory Map Location	8K Bytes boundary, P.O.S.
Power Requirements	+5VDC @ 1.37A +12VDC @ 0.043A -12VDC @ 0.043A

ORDERING GUIDE

Model ACL-4 . . . . . $ 910.00
Model ACL-8 . . . . . $ 1135.00
Includes ACL board with RS232 termination, documentation, DOS & Windows drivers.
Model ACL-4-422 . . . . . $ 1010.00
Model ACL-8-422 . . . . . $ 1235.00
Includes ACL Board with RS422 termination, documentation, DOS & Windows drivers.

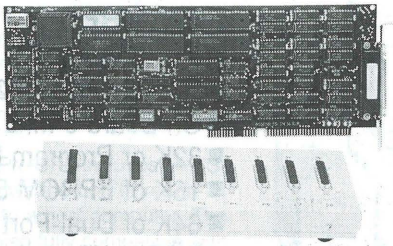
AVAILABLE DRIVERS

ONE additional driver available at NO charge

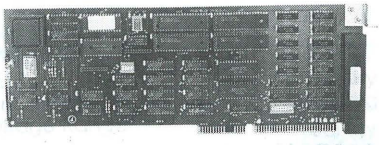
Model QNX/DRV . . . . . $ NC
Model SCOXENIX/DRV $ NC
Model UNIX/DRV . . . . . $ NC
Model SCOUNIX/DRV . $ NC
Model OS2/DRV . . . . . $ NC
Model UNIX-SVR4/DRV $ NC
Model 32BIT-OS2/DRV . $ NC

8-Port Adapter
with Co-Processors

Model ACL-8-II+



Model ACL-8-IIR+



FEATURES

- 8 Ports
- 16 Mhz 80188 CPU On-Board
- Up to 4 Boards Per System
- Handshaking Supported
- 50 to 115K Baud
- DOS & Windows Driver Included

ACL-8-II+

- Termination Box Included

ACL-8-IIR+

- RJ-12 Connections

The ACL-8-II+ and ACL-8-IIR+ provide eight ports of full RS232 communications on a single "intelligent" board. The on-board 80188 microprocessor, operating at 16 Mhz, has the power and speed to handle demanding multi-user communications systems interfacing with 64K of Dual-port RAM. The number of ACL-8-II(R)+'s in a system is limited only by the number of suitable 16-bit expansion slots and power supply capacity.

The ACL-8-II(R)+ can be downloaded with your own application program to run concurrently with your main application program running on your AT or compatible system. You may even create your own operating system and download to the ACL-8-II(R)+'s. The typical bottleneck of communications seen when a single CPU tries to do everything is easily avoided through the use of this board. System throughput speeds have been enhanced by the use of 26C92 DUARTS. These chips add 8 character transmit and receive FIFO buffers to each port. Simultaneous channel throughput speeds greater than 23K baud are achievable in most systems. Several major operating systems are supported. Diagnostic and sample software is included to help in developing your applications under DOS.

System cabling is simplified by including termination panels for the ACL-8-II+ or the RJ-12 jacks on the rear of the ACL-8-IIR+.

The ACL-8-II(R)+ supports MS-DOS (3.0 and greater), PCMOS/386, Unix and Xenix. System requirements include an IBM-AT or 100% compatible system. A full length 16-bit expansion slot is required for each ACL-8-II in the system. An instructional manual and a setup diskette is included with each board.

SPECIFICATIONS

Number of Channels	8 maximum
Interface Format	Serial with control lines: all ports asynchronous
Communications	50 to 115,200 baud selectable under program control
Software Program Choices	Parity: Even, odd, mark, space or none Character length: 5, 6, 7, or 8 bits Stop bit length: 1 or 2 bits
I/O Connectors	8 RJ12 connectors (-IIR+) 8 DB25, female, remote panel (-II+)
I/O Address	2 locations per setting 4 settings per board
Operating Temp.	0 to 55°C
Storage Temp.	-10 to 70°C,
Relative Humidity	10 to 90%, RHNC

ORDERING GUIDE

Model ACL-8-II+ . . . . . $ 1195.00
Eight Port Card, Termination Block with DB25 connectors, DOS & Windows Drivers

Model ACL-8-IIR+ . . . . . $ 795.00
Eight Port Card, Termination Block with RJ-12 connectors, DOS & Windows Drivers

Model ACL-8-II+-422 . . $1355.00
Eight Port Card, Termination Block with DB25 connector and RS422, DOS & Windows Drivers Optional RJ12 to DB25 (Call for Models)

DATA COMM. CONNECTORS

Model DCECONF . . . . . $ 19.00
Model DCECONM . . . . $ 19.00
25-pin connectors used by most printers

DATA TERMINAL CONNECTORS

Model DTECONF . . . . . $ 19.00
Model DTECONM . . . . . $ 19.00
25-pin connectors used by most printers

DATA MODEM CONNECTORS

Model DTEMODM . . . . . $ 19.00
Model DTEMODF . . . . . $ 19.00
25-pin connectors used by most modems

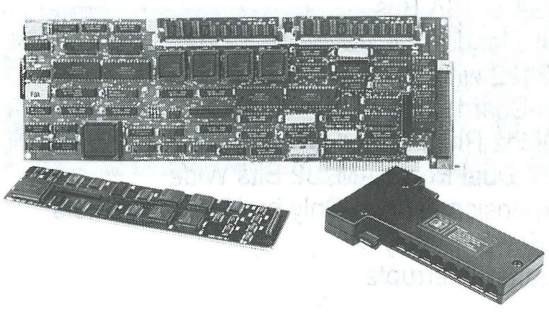
AVAILABLE DRIVERS

ONE additional driver available at NO charge

Model QNX/DRV . . . . . $ NC
Model SCOXENIX/DRV $ NC
Model UNIX/DRV . . . . . $ NC
Model SCOUNIX/DRV . $ NC
Model OS2/DRV . . . . . $ NC
Model UNIX-SVR4/DRV $ NC
Model 32BIT-OS2/DRV . $ NC

16-Port Adapter
with Co-Processor

Model ACL-16-PH+



FEATURES

- 16 Channels RS232 or RS422
- 2 On-Board 80C186's @ 16Mhz
- Up to 4 Boards per System
- Up to 115K Baud
- Up to 24K Baud Simultaneous Throughput

ACL-16-PH+

- RJ-12 Plug 6-Wire Cabling

ACL-16-FH+

- DB-25 Connectors

The Model ACL-16-(xx)+ expansion board provides optimum speed and system response on all 16 ports, all from a single expansion slot.

DUAL MICROPROCESSORS

The first 16-port board with two on-board 16Mhz 80C186 microprocessors, the Model ACL-16-(xx)+ offers twice the processing power of other 16 port boards. Plus each microprocessors is supported by 64KB scratch RAM and 16KB dual ported RAM.

You can maximize your systems communications capacity with the ACL-16-(xx)+. Add more users, reduce your costs per port and save on slots too. The dual microprocessors off-load the host CPU of many housekeeping and communications chores, freeing it to focus on the user application. Each on-board processor has its own dual port memory bank.

By storing data in dual port memory, the host can transmit and receive data more efficiently. The overall system runs more smoothly and multiuser terminals enjoy faster response times.

System throughput speeds have been enhanced by the use of 26C92 DUARTS. These chips add 8 character transmit and receive buffers to each port. Simultaneous channel throughput speeds of greater than 23K baud are achievable in most systems.

System performance is further enhanced by 64KB scratch RAM for each microprocessors, double the buffer of other 16 port boards. Besides improving the system's data transfer capabilities, scratch RAM enables users to modify or replace on-board software with custom I/O programs.

FLEXIBLE CONNECTIONS

Partial handshake control functions are available on the RJ12 phone jack type, 6 wire connections. The "clamshell" connector block attaches to the rear of the ACL-16-PH+ and provides sockets for 16 RJ12 connector plugs to simplify system wiring.

Full handshake control functions are available on a pair of terminal boxes with eight DB-25 connectors each. The terminal boxes connect to the ACL-16-FH+ via a "Y" cable.

SPECIFICATIONS

No. of Channels	16 maximum
Interface Format	Serial EIA-232 DTE configuration with no-handshake and full-handshake options
Communi-cations	50 to 115,200 baud selectable under program control
Software Program Choices	Parity: Even, odd, mark, space or none Character length: 5, 6, 7, or 8 bits Stop bit length: 1 or 2 bits
Micro-processors	80C186 (2) @ 16Mhz
Architecture	16-bit AT
Scratch RAM	Two 64KB
Dual Port RAM	Two 16KB
DUARTS	Eight dual 26C92
Interrupts	3, 4, 5, 10, 11, 12, 15
I/O Channel Address	Choices: 200-203H, 300-303H, 600-603H, or 700-703H
Memory Mapped	Yes, selectable
Handshake (-PH+)	DCD, CTS, RTS;
Handshake (-FH+)	RTS, CTS, DTR, DSR, DCD RI (DTE configuration)
Handshake	NONE
I/O Connectors	-PH+: 6-wire RJ-12 -FH+: 25-pin D-connector (Two 8-connector panels attached by "Y"-cable) -422+: 9-pin D-connector
Power Requirements	+5VDC @ 2A +12VDC @ 130mA -12VDC @ 130mA
Operating Temp.	0 to 55°C
Storage Temp.	-10 to 70°C
Relative Humidity	10 to 90%, RHNC

ORDERING GUIDE

Model ACL-16-PH+.... $1495.00
Model ACL-16-FH+.... $1995.00
Model ACL-16-422+... $2315.00

Windows Driver will only Support 8 ports.

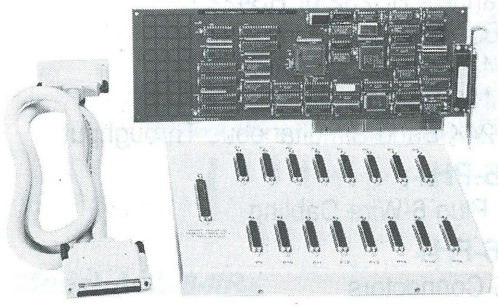
AVAILABLE DRIVERS

ONE additional driver available at NO charge

Model QNX/DRV..... $ NC
Model SCOXENIX/DRV $ NC
Model UNIX/DRV ..... $ NC
Model SCOUNIX/DRV . $ NC
Model OS2/DRV ..... $ NC
Model UNIX-SVR4/DRV $ NC
Model 32BIT-OS2/DRV . $ NC

Surge Protected Intelligent Adapters

Model AV100E



FEATURES

- 16 Asynchronous Serial Ports for EISA or ISA Bus
- Full Handshake RS232 or RS422 with Surge Suppression
- On-Board 16Mhz 80C186 Microproessor
- 20Mhz RISC-Based UARTs with Internal FIFO
- 32K Dual Port RAM, 32 Bits Wide
- Expansion Limited Only by Number of Slots & Power Supply
- Shared Interrupts

The AV100 Series adapters are intelligent expansion boards that adds serial ports to ISA and EISA Bus computers. The AV100 enables a computer equipped with a multi-user operating system to become a host PC in a multi-user system. The adapter relieves the PC of communication responsibilities while supporting up to sixteen serial devices. These include terminals, printers, plotters, video displays, modems, other computers, and many other serial input/output devices (per EIA-232). There is also an eight channel version. The number of Avanstar boards that can be used in a host PC is limited only by the operating system and the availability of EISA slots.

To control wiring clutter and simplify connections, the serial ports are located on an input/output remote panel. An interface cable is supplied to connect the board to the I/O remote panel. This panel serves as a junction box. It contains the receptacle for connection to the adapter board. There are sixteen serial device connectors which comply with the standard EIA-232 DTE configuration. On the RS422 version, each channel is programmable for either RS422 or RS232.

The AV100 is designed for maximum application flexibility with minimum effort. Configuration of the PC for operation with the adapter is done with the help of the EISA configuration utility diskette and the AV100 configuration diskette. This software allows you to assign the dual port boundary addresses anywhere in the first megabyte of the system address space on any 32k byte (8000hex) boundary. You can also select interrupt-driven operation using any one of the eight interrupt request levels provided by the adapter or, it allows you to disable interrupt-driven operation.

CPU

The on-board CPU is a 16Mhz 80C186. Its main task is to service the UARTs. Also, the CPU reads and processes commands and data from the dual port memory that originate from the application program. This operation minimizes the overhead associated with moving data between the application program and the peripheral.

Communications between the AV100 adapter and peripheral devices is handled by a UART device. The AV100 contains four RISC-based CD1400 quad UARTs.

For each channel, the specifications for operating mode, data format, baud rate, and protocol are completely under program control. Each channel contains a 12-byte transmit and a 12-byte receive FIFO to further enhance system throughput.

DUAL PORT RAM

The AV100 adapter communicates with the host via dual port memory. Dual port memory, which consists of 32k bytes of RAM, is a hardware configuration which allows two processors to share the same physical memory. This is an efficient means of communicating data or commands between the CPU on the AV100 adapter and the CPU in the host. All accesses to the dual port by both the host PC and the AV100's CPU are 32-bit wide transfers. This permits faster movement of data to and from the dual port memory.

Because both CPUs cannot access this memory at the same time, an arbiter circuit is put between the memory and the CPUs. The arbiter determines which CPU may gain access to the dual port memory.

SPECIFICATIONS

No. of Channels	16
Interface Format	Asynchronous
Protocol	EIA-232
Handshake Lines	RTS, CTS, DSR, DCD, DTR
Parity	Even, odd, mark, space, or none
Character Length	5, 6, 7, or 8 bits
Stop Bit Length	1 or 2 bits
Baud Rate	50 to 115.2k baud per channel
Interrupts	3, 4, 5, 9, 10, 11, 12, 15, or none
Power Requirements	+5V @ 2A +12V @ 0.0768A -12V @ 0.0384A
Operating Temp	0 to 55°C
Storage Temp	-10 to 70°C

ORDERING GUIDE

Model AV100E ..... $ 1695.00
EISA 16-port Card, manual, junction box, cable, software

Model AV100E-422.... $ 1995.00
EISA 16-port Card, 232/422, manual, junction box, cable, software

Model AV100E/8..... $ 1295.00
EISA 8-port Card, manual, junction box, cable, software

Model AV100E/8-422.. $ 1595.00
EISA 8-port Card, 232/422, manual, junction box, cable, software

Model AV100I ..... $ 1695.00
ISA 16-port Card, manual, junction box, cable, software

Model AV100I-422 .... $ 1995.00
ISA 16-port Card, 232/422, manual, junction box, cable ,software

Model AV100I/8 ..... $ 1295.00
ISA 8-port card, manual, junction box, cable, software

Model AV100I/8-422 .. $ 1595.00
ISA 8-port Card, 232/422, manual, junction box, cable, software

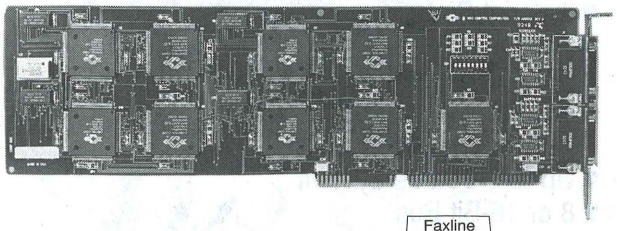
ADDITIONAL DRIVERS

ONE additional driver available at NO extra charge

Model SCOUNIX/DRV ... $ NC
Model UNIX-SVR4/DRV .. $ NC
Model AV32BIT-OS2/DRV $ NC

Multiport Adapters

Model ROCKETPORT32



Faxline Document #:1100

FEATURES

- Throughput up to 230.4 Kbps SIMULTANEOUSLY (RS422 Mode)
- 4, 8, 16, & 32 Port Models
- On-Board 36 Mhz Processor for Each 8 Ports
- I/O Mapped Like a Non-Intelligent Card for Easy Installation
- Install up to 4 Boards in One System for a Maximum of 128 Ports
- Supplied with DOS & Windows Drivers

The ROCKETPORT multiport serial controller series fits a 16-bit ISA slot of a PC compatible computer. Four base versions are available in 4, 8, 16, or 32 ports. Further, two connector versions are offered. There is a 4 and 8 port version with RJ45 (4 port) or RJ11 (8 port). There are also 4, 8, 16, and 32 port versions with external junction panels with DB25 female connectors. One version of this panel is just RS232 while another is switch selectable between RS232 and RS422.

DRIVER SUPPORT

The RocketPort card come supplied with both DOS and Windows drivers, as well as SCO UNIX drivers. Using DOS, support for up to 128 ports is provided. Using Windows, you have support for up to 96 ports. That's three RocketPort cards running under Windows!

Other drivers available include the following: OS/2, QNX (4.11 & 4.2), SCO XENIX (SRV 3.2v2.3.4), Solaris, SVR3.2 UNIX (3.2v3 & 3.2v4), SVR4 UNIX (SRV4.2 & Unixware 1.0), and Windows NT (3.1).

ORDERING GUIDE

Model ROCKETPORT4J . $ 299.00
Board, manual, software

Model ROCKETPORT8J . $ 399.00
Board, manual, software

Model ROCKETPORT4 . . $ 359.00
Board, manual, software

Model ROCKETPORT8 . . $ 379.00
Board, manual, software

Model ROCKETPORT16 . $ 629.00
Board, manual, software

Model ROCKETPORT32 . $ 1099.00
Board, manual, software (Requires two 16 port interface panels)

INTERFACE PANELS

(All have DB-25 female connectors)

Model RPI4-232 . . . . . $ 149.00
Panel, cable

Model RPI4-232/422 . . . $ 185.00
Panel, cable

Model RPI8-232 . . . . . $ 299.00
Panel, cable

Model RPI8-232/422 . . . $ 329.00
Panel, cable

Model RPI16-232 . . . . . $ 399.00
Panel, cable

Model RPI16-232/422 . . $ 459.00
Panel, cable

SPECIFICATIONS

Ports	4, 8, 16, or 32
Number of Cards per System	4 max
Interface	RS232 (Optional RS422, non "J" version)
Interrupt	None, 3-5, 9-12, & 15
Data Bits	7/8
Stop Bits	1/2
Baud Rate	RS232: 50-115.2Kb RS422: 50-230.4Kb

POWER REQUIREMENTS

	+5 VDC	+12VDC	-12VDC
4J	300mA	35mA	40mA
8J	300mA	45mA	50mA
8	700mA	65mA	80mA
16	950mA	130mA	150mA
32	1.9A	240mA	270mA

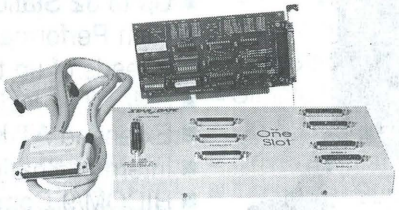
Temperature	Operating: 0 to 70°C Storage: -65 to 150°C
Relative Humidity	8 to 80% RHNC

MTBF	
4J	41 years
8J	36 years
8	51 years
16	39 years
32	25 years

Serial Parallel Multiport Board

Model ONE-SLOT

Now a single PC expansion slot can support up to 7 peripheral devices, including laser printers, dot matrix printers, mice,bar code readers, plotters and modems. The Model ONE-SLOT Combination Multiport Board supplies 4 serial (COM 1 - COM 4) and 3 parallel ports (LPT 1 - LPT 3) in one low-cost, easy to install unit. Delivering full duplex communications with complete handshake control on all serial ports and bidirectional Centronics on all parallel ports, the ONE-SLOT supports a multitude of PC expansion applications for single-user, multi-user and networking installations.



FEATURES

- Supports Windows, Multimedia, OS/2, Novell and DOS Environments
- Fully Shielded Remote Panel & Cables
- 4 EIA-232E Serial Ports with Full Handshake Control
- Baud Rates of 50 to 115K Programmable
- 3 Centronics Parallel Ports

ORDERING GUIDE

Model ONE-SLOT . . . . . $ 249.00
Board, manual, remote panel, cable

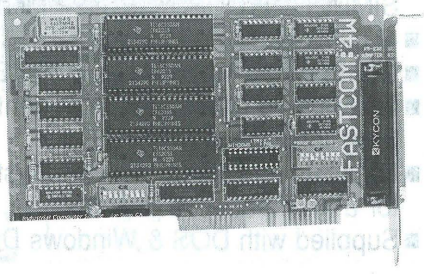
Adapters

EXPRESS SOURCE-BOOK FAXLINE
1-800-677-7329
Receive a detailed FAX within Minutes!
FAX

4-Port Windows Compatible

Model FASTCOM4W

Faxline Document #:1038



FEATURES

- 4 Serial Ports
- Windows 3.1 Compatible PAL Included
- 16C550 Uarts
- True COM1 thru COM4 Compatibility in Windows Mode
- Up to 5 Boards/System
- 8 or 16-Bit Bus
- Driver/Buffer Software Included

SPECIFICATIONS

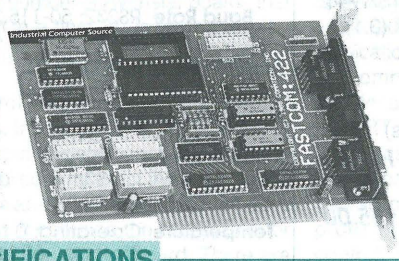
Ports	4, RS232
I/O Address Requirements	32 Bytes-selectable
UARTS	TIL16C550
Interrupt	Selectable 1 of 6 (2-7)
Baud Rates	50-256k (above 56k requires crystal change, customer supplied)
Connectors	DB37, female on card 4 each, DB25, male on cable end
Software	SMART14 Communication Utility
Power Consumption (typical)	5V @ 400mA ±2V @ 50mA each

ORDERING GUIDE

Model FASTCOM4W . . . $ 395.00

RS232, 4-port card, SMART14, Windows PAL, cable and manual

Model FASTCOM/422



FEATURES

- 1 or 2 Serial Com Ports
- RS422/RS485
- Up to 288K Baud
- Selectable I/O Address
- 4 Byte Receive/Transmit Buffers
- Driver/Buffer Software Included
- HICOM/9 Compatible

SPECIFICATIONS

Ports	1 standard (2- /SER option)
I/O Address Requirement	8 I/O Bytes
I/O Base Address	Selectable per port
UART	82510 (2nd 82510-/SER option)
Baud Rates	50-288K baud
Interrupt	1 of 6, per port (2-7)
Connectors	1 DB9, male (2nd DB9, male-/SER option)
Software	SMART14 Communication Utility

ORDERING GUIDE

Model FASTCOM/422. . $ 195.00

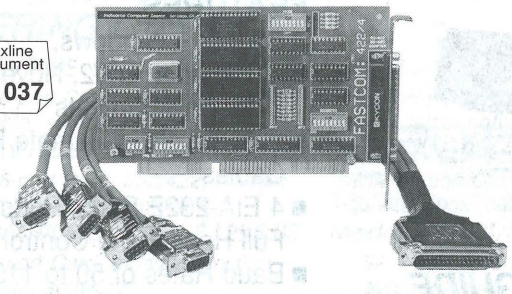
RS422 port, SMART14 software, manual

Model FASTCOM/SER. . $ 49.00

Second RS422 UART and driver chips for FASTCOM/422

Model FASTCOM422/4

Faxline Document #:1037



FEATURES

- 4 Independent RS422/485 Channels
- Up to 32 Stations (RS485 mode)
- High Performance 82510 UARTs
- Speeds of up to 288k Baud
- SMART14 Included
- Extended AT Interrupts
- Interrupt Sharing
- HICOM/9 Compatible

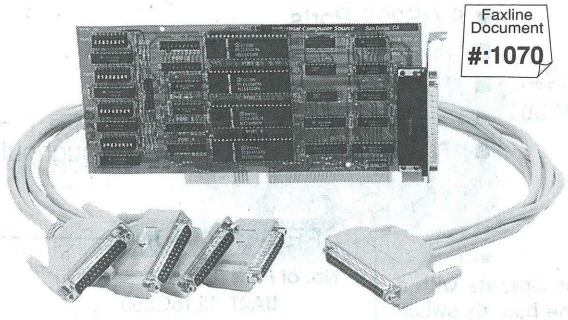
ORDERING GUIDE

Model FASTCOM422/4. . . . . $ 450.00

Board, manual, SMART14 software, cable

Order Now!

Model WINCOMM4



Faxline Document #:1070

FEATURES

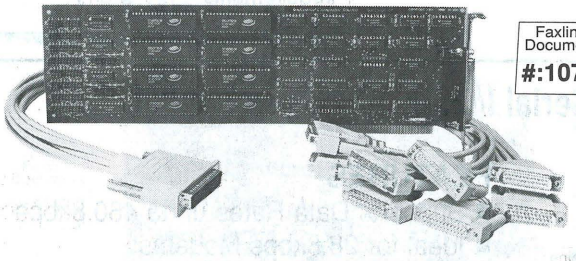
- 4 RS232 Ports with All Modem Control Signals
- Individually Selectable Port Addresses
- Individually Selectable, Extended AT Interrupts
- Each Port is Individually Addressable as COM1: Through COM4: or Any Other I/O Address up to 3FF Hex
- Multiple Cards can Share the Same IRQ Signal
- Comes Standard with 16550 UARTs
- Windows 3.1 Compatible

The WINCOMM4 provides 4 additional serial ports for terminals, modems, printers, etc. The WINCOMM4 will function in either a DOS or Windows environment. The card can be configured as COM1: through COM4: or any other I/O address (up to 3FFH), providing a low cost means of expanding the number of serial ports on your PC. The WINCOMM4 utilizes the 16550 UART.

ORDERING GUIDE

Model WINCOMM4 . . . $ 299.00
Board, cable, manual, software

Model WINCOMM8



Faxline Document #:1073

FEATURES

- 8 RS232 Ports with Full Modem Control
- Extended AT Interrupts, Selectable for Each Port
- Extended Address Range for UNIX / SCO XENIX
- Interrupt Status Register
- Interrupt Sharing
- 16550 UARTs Included

The Model WINCOMM8 combined with the Model HICOM/9 Windows driver makes a great combination when more than 4 ports are required under Windows. The Model WINCOMM8 occupies 64 consecutive I/O locations but HICOM/9 makes Windows port addressing a snap. For special addressing requirements, a custom PAL can be installed. Using the PAL option will allow you to obtain COM1: thru COM4: address, XENIX comm address, or any other standard or nonstandard address configuration.

ORDERING GUIDE

Model WINCOMM8 . . . $ 499.00
8-Channel Board, software, manual

Windows Device Driver for Non-Intelligent Multi-Port Serial Cards

The Model HICOM/9 Windows driver provides the PC/XT/AT, with a software driver, under Windows 3.1, that directly supports up to nine serial ports. Programmable controllers, data entry terminals, timeclocks and any communications application running under Windows 3.1 requiring multiple ports can benefit from the use of HICOM/9. Just as with DOS applications, distances of up to 5000 feet, or 1515 meters (RS422) are easily accommodated when utilizing the HICOM/9 Windows driver and the appropriate communications adapter.

WINDOWS COMMUNICATIONS

Windows 3.1 provides a versatile and easily configurable interface to support up to 4 COM: ports with the standard driver. Under Windows 3.1, up to 9 serial ports can be easily configured if using the new HICOM/9 Windows driver. The Windows HICOM/9 ports applet allows the user to configure each port. The user is allowed to select or define the COM port, Baud Rate, Data Bits, Stop Bits, Flow Control, Base I/O Address, IRQ, and 16550 FIFO UART usage. By providing access to the "AT" IRQ lines 10, 11, 12 and 15, higher data throughput and reliable communications can be achieved by assigning each serial port its own IRQ line.

FEATURES

- Supports Up To 9 Serial Ports Under Windows 3.1
- Maintains Standard COM1:Access
- Supports Both Standard & 386 Enhanced Modes Under Windows 3.1
- Programming Interface is Identical to That For The Standard Microsoft Driver
- Simple Installation Program to Allow You to Get Up & Running Fast
- Driver Replaces Limited Windows 3.1 Driver
- Technical Support Provided at No Cost
- Supports 82510 UART

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Model HICOM/9 . . . . . $ 99.00

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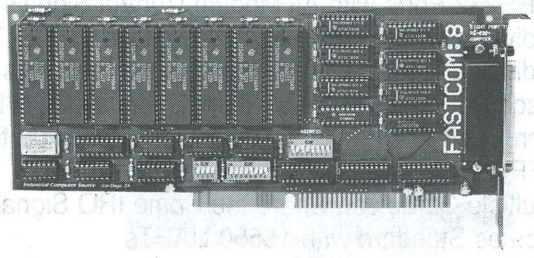
Multi-Channel, High-Speed Adapters

Model FASTCOM8



Faxline Document #:1036

FEATURES

- 8 RS232 Ports
- Uses 16550 UARTs
- AT Interrupts
- SMART14 Software Included
- 16 Byte FIFO for Improved Throughput

The FASTCOM8 is an advanced multi-channel RS232 interface designed for commercial, industrial, and OEM applications. The FASTCOM8 uses the high performance 16550 UARTs and makes the board compatible with DOS, Windows and UNIX.

The eight channel FASTCOM8 inherits all of the hardware/software features of our popular four channel FASTCOM4 adapter. Software and hardware systems designed using the FASTCOM4 will benefit from the advanced features of the FASTCOM8.

The FASTCOM8 can operate with a FASTCOM4 on the same bus. Its switch selectable address and IRQ sharing allow multiple FASTCOM boards to be installed in a single system.

SPECIFICATIONS

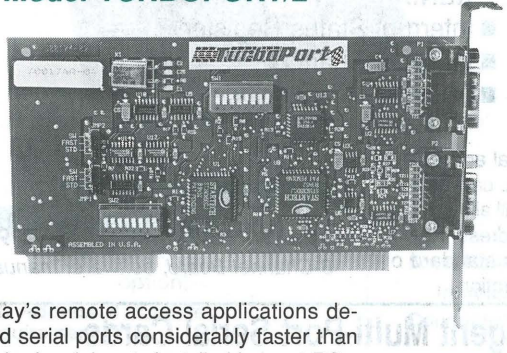
No. of Ports	8 RS232
UART	TIL16C550
Baud Rate	50 - 256k
Interrupt Levels	2-7, 10,-12, 15
Buffering	Transmit - 16 bytes Receive - 16 bytes
Signals Supported	TXD, RXD, DTR, DSR, DCD, RTS, CTS, & RI
Bus	16 bit
Power Requirements	+5V @ 600mA +12V @ 6mA -12V @ 6mA

ORDERING GUIDE

Model FASTCOM8. . . . . $ 599.00
RS232, 8-port card, software, manual & cable

High-Speed Serial I/O Ports

Model TURBOPORT/2



Faxline Document #:1167

FEATURES

- Supports Data Rates up to 460.8kbps
- Ideal for 28.8kbps Modems
- One or Two Programmable Ports for ISA Systems
- Multiple-Strike Surge Protection on Every Signal

Today's remote access applications demand serial ports considerably faster than standard serial ports installed in most PCs. Four times faster than V.34 modems, the TURBOPORT family is designed to support the latest and fastest modern standards.

TURBOPORT controllers easily accommodate data rates up to 460.8kbps. Such speeds significantly reduce transmission times and telephone costs. Designed to deliver fast, reliable connections for remote PC users working in Windows, NetWare, OS/2 or DOS environments, these communications accelerators also may be used on the network side for modem connections supporting small numbers of remote users.

Each port is serviced by a 16C650 UART with twice the FIFO memory capability of standard 16550 UARTS. These 32-byte transmit and receive FIFOs enable the TURBOPORT controllers to maximize modem connections and deliver accurate data transmissions at high speeds. The cards are software-configurable and offer automatic software/hardware flow control.

SPECIFICATIONS

PORTS

Number of Ports	1 - TURBOPORT/1 2 - TURBOPORT/2
Interface	EIA-232
Baud Rates	Up to 460.8kbps
Bus Interface	8-bit with extended interrupt support
UART	16C650, one per port
Data Buffers	32-byte transmit and receive FIFO per port

GENERAL

I/O Address	COM1: through COM4:
IRQ Options	Shared or individual
Interrupts	2-5, 10-12, 15
Power Required	+5VDC @ 160mA +12VDC @ 40mA -12VDC @ 38mA

PHYSICAL

Temperature Range	Operating: 10 to 55°C Storage: -10 to +70°C
Relative Humidity	10 to 90% RHNC
Size	3.375" x 6.37" (86 x 162mm)
Connector	9-pin D-sub EIA-574 serial connector

ORDERING GUIDE

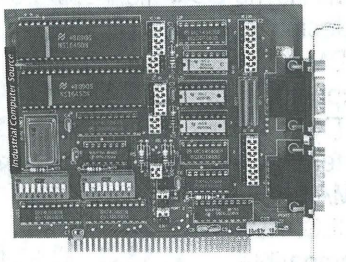
Model TURBOPORT/1 . . $ 89.00
Single port card, software, manual

Model TURBOPORT/2 . . $ 129.00
Dual port card, software, manual

2-Port PC Adapters

Model SPRT2A/AT

Faxline Document #:1067



FEATURES

- Dual RS422/485 or RS232. Ports Can Be Mixed
- Can Be Used in Short Slot
- Addressable COM1-COM4
- DB9, Male Connectors
- 16550 UARTs

SPECIFICATIONS

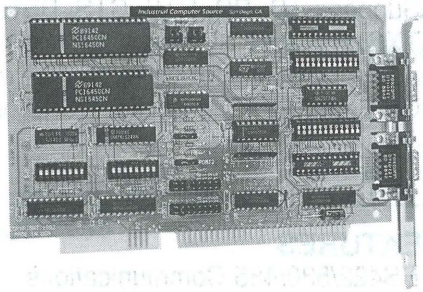
Ports	2
I/O Address Requirements	8 consecutive locations/port
I/O Base Address	Selectable per port
Interrupts	1 of 4 selectable per port

ORDERING GUIDE

Model SPRT2A/AT ..... ***$ 229.00***
2-port card, software & manual

Model SPRT2B/AT

Faxline Document #:1067



FEATURES

- Dual RS232 or RS422/485 Ports Can Be Mixed
- Extended AT Interrupts
- Addressable COM1-COM4
- 16550 UARTs

SPECIFICATIONS

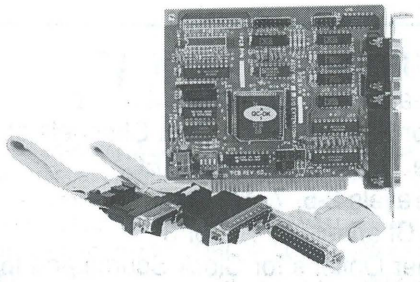
Ports	2
I/O Address Requirements	8 consecutive locations/port
I/O Base Address	Selectable per port
Interrupts	1 of 9 selectable per port

ORDERING GUIDE

Model SPRT2B/AT ..... ***$ 239.00***
2-port card, software & manual

Serial Communication

Model SPC20



FEATURES

- 2 (RS232) Compatible Serial Ports
- PC Compatible
- COM1 thru COM4 Supported
- Printer Port
- LPT1, LPT2 or LPT3

ORDERING GUIDE

Model SPC20 ..... ***$ 69.00***

Sync/Async Adapters

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Model ACB2

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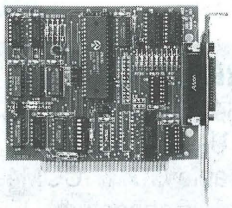

The ACB2 advanced communication board provides the IBM PC/XT/AT and compatibles with a synchronous high-speed DMA communication port. The ACB2 supports RS232 and RS422 communications.

FEATURES

- Sync/Async Operation Using 8530 SCC
- Selectable Port Address, IRQ Level, & DMA Channel
- Supports TD, RD, RTS, CTS, RXC, & TXC Signals
- External Clock Jumper for Transmit Clock
- DMA to 880k Baud
- SDLC, HDLC & X.25 Compatible

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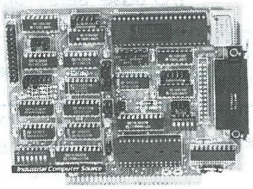
Model ACB2 ..... $ 299.00

Model ACB3

Faxline Document #:1030



The ACB3 advanced communication board provides the IBM PC/XT/AT and compatibles with synchronous high-speed DMA communication port. The card supports 2, RS-232 communication ports. The ACB3/SP is a single port version

FEATURES

- Two Channels of Sync/Async Communications Using 8530 SCC
- DMA Supports Data Rate to 880K
- Selectable Port Address, IRQ Level (2, 3, 4, 5) and DMA Channel 1 or 2
- RS232 Interface With Full Modem Control
- Supports TD, RD, RTS, CTS, DSR, DCD, DTR, TXC, RXC, TT Signals
- Jumper Options for Clock Source and I/O
- On-Board EPROM Socket (16KB or 128KB)

ORDERING GUIDE

Model ACB3 ..... $ 319.00
Model ACB3/SP ..... $ 169.00

Model ACB4

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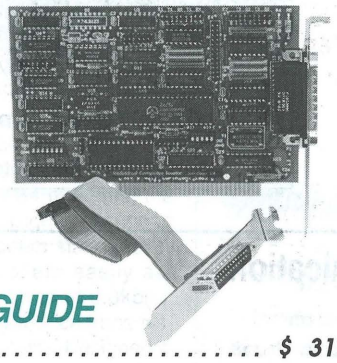

FEATURES

- RS422/530/485 Communications
- Two Channels of SYNC/ASYNC Communications Using 8530 SCC Chip
- Full Modem Control RS530
- Selectable Address/IRQ
- DMA to 880K Bits Per Second
- T1 and F-T1 Pipeline Interface
- S/W Programmable Baud Rate
- Supports TD, RD, RTS, CTS, DSR, DCD, DTR, TXC, RXC, LL, RL, TM Signals

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Model ACB4 ..... $ 319.00

Model ACB4-AT

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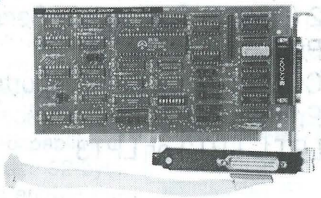

FEATURES

- All Features of ACB4 Plus
- Half or Full Duplex on Both Channels at the Same Time For XMIT or REC
- IRQ Levels 2-5, 7, 10-12, & 15
- DMA Channels 0, 1, 2 or 3
- Jumper Options for Clock Source and Input/Output Mode

ORDERING GUIDE

Model ACB4-AT ..... $ 339.00
Model ACB4-AT/16MHZ..... $ 429.00
High speed version required for use with PCI CPUs

Order Now

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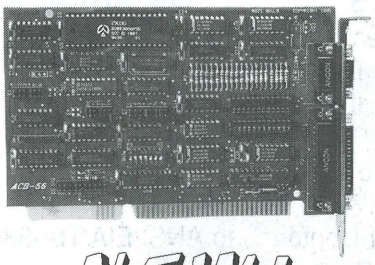
Sync/Async RS-232/V.35
with RS-232 CSU/DSU Interface

Model ACB56



Faxline Document #:1332

NEW!

The Model ACB56 provides the PC with two communication ports. One is a single Synchronous/Asynchronous channel that is jumper selectable as RS-232 or V.35, and a single Asynchronous RS-232 port. The Asynchronous RS-232 port can be used to control and monitor a CSU/DSU. The Asynchronous port can also be used as an ISDN interface.

Some other situations where the ACB56 can be used include applications requiring protocols such as SDLC, HDLC, X.25, MONOSYNC, BISYNC, and ASYNC. The card can also be used in Fractional T1 pipelines and as an interface to the AS/400. The ACB56 also functions in Switched 56k and 64kbps applications.

FEATURES

- Single Channel Sync/Async w/ CSU/DSU Control Port
- 8530 SCC (Serial Communications Controller)
- DMA Supports Data Rates Greater Than 1Mbps
- Full Duplex DMA Transfer Capability
- V.35 Interface with Full Modem Control Signals
- Clocks can be Inverted for Unique Installations
- Software Programmable Baud Rates
- Software Developer's Tool Kit Included with Source Code

SPECIFICATIONS

SCC	8530-6
Number of Ports	Single Sync/Async RS-232/V.35 w/ Async RS-232
Max. Data Rate	1.2288Mbps
Max. Data Distance	Up to 100ft
Operating Temperature	0 to 50°C
Storage Temperature	-20 to 70°C
Humidity	0 to 90%RHNC
Power Requirements	+5VDC @ 420mA ±12VDC @ 50mA ea.
Connectors	(1) DB-25 Male, (1) DB-9 Male

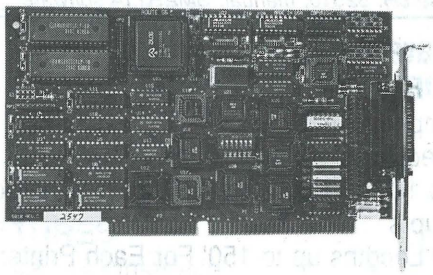
ORDERING GUIDE

Model ACB56 . . . . . $ 199.00
Card, manual, software

Model CAB/V35-36 . . . $ 45.00
V.35 Interface cable, 36" (914mm)

Model CAB-104 . . . . . $ 20.00
DB-25 M-F cable, 6' (1828.8mm)

Model ROUTE56



Faxline Document #:1333

NEW!

The ROUTE56 adapter provides the PC with a single channel high-speed multi-protocol serial interface suitable for many popular communications protocols. This Sync/Async card is an ideal solution for high-speed applications including LAN/WAN connectivity. The ROUTE56 adapter utilizes the Z16C32 (IUSC) with built-in DMA controllers to eliminate bus bandwidth constraints placed on most typical PC interface adapters, allowing data rates to reach 10Mbps in burst mode. By utilizing the Z16C32's 32 byte FIFO buffer coupled with the 256K of on-board memory, the ROUTE56 adapter achieves high data rates without increasing processor overhead.

FEATURES

- Single Channel High-Speed Sync/Async WAN Interface
- On-Board Z16C32 (IUSC™) with Built-In DMA Controller and 32 Byte FIFO Buffer
- RS232, RS422/449, EIA-530, V.35 and X.21 Serial Interface Capability with Versatile Cabling Options
- Multiple Protocols Supported including: PPP (Point-to-Point Protocol), Frame Relay, X.25, High-Speed Async, Bisync, Mono Sync, HDLC, SDLC and MIL-STD-1553D
- Ideal for Fractional T1, E1 and ISDN Applications
- 256K Bytes of On-Board RAM/Link List DMA Supported
- Up to 10Mbps Burst Mode
- Off Loads Communications Processing

ORDERING GUIDE

Model ROUTE56. . . . . $ 569.00
Card, manual and software

Serial & Parallel Adapters

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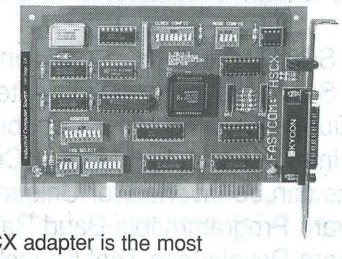
FAX

Advanced High Speed Synchronous Communications Adapter

Model FASTCOM/HSCX



Faxline Document #:1035

The FASTCOM/HSCX adapter is the most advanced synchronous communications adapter in the industry. Supporting data rates up to 4Mbits/s, the FASTCOM/HSCX is as easy to install and use as a standard PC serial adapter. The FASTCOM/HSCX is compatible with other HDLC adapters, yet features 4 times the speed of 82530 based adapters and is much easier to program.

FEATURES

- High Speed, Up to 4Mb/sec
- Extremely Easy to Program and Use
- Supports HDLC, SDLC, ISDN LAP D, & X.25 LAP B
- RS422/485 Multidrop
- 64 Byte FIFO
- Connector Conforms to ANSI/EIA/TIA-530-A-1992
- Windows Driver Included

SPECIFICATIONS

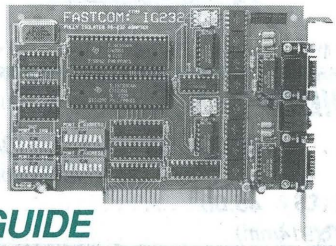
Controller	Siemens 82526
Drivers/ Receivers	RS422/485
Power Requirements	+5V @ 300mA (typ)

ORDERING GUIDE

Model FASTCOM/HSCX $ 325.00
Board, manual, software

True Isolated RS-232 Adapter

Model FASTCOM/IG232DP



Faxline Document #:1089

FEATURES

- Designed to Comply with VDE Isolation Requirements
- Dual and Single Channel Versions
- 5000V Opto-Isolator Breakdown
- Both Channels Fully Isolated
- Fully Isolated Ground & Signal Lines
- COM1 thru COM4 Compatible

ORDERING GUIDE

Model FASTCOM/IG232DP . . . . . $ 230.00
Dual channel board, manual, SMART14 software

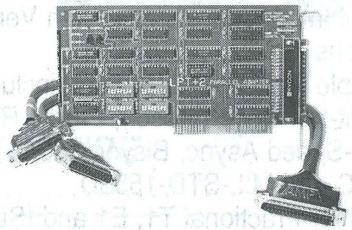
Model FASTCOM/IG232 . . . . . $ 175.00
Single channel board, manual, SMART14 software

Model FASTCOM/IG422-1 . . . . . $ 175.00
Single cH. 16C550, manual, SMART14 software

Model FASTCOM/IG422-8 . . . . . $ 175.00
Single cH. 82510, manual, SMART14 software

Dual Port High Power Parallel Card

Model FASTCOM/LPT-DP



Faxline Document #:1034

FEATURES

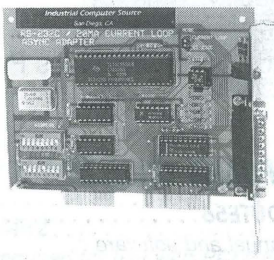
- 2 Completely Independent, Fully Bi-Directional, Parallel Ports
- Up To 10 Cards in a System Using Shared Interrupts
- Cable Lengths up to 150' For Each Printer

ORDERING GUIDE

Model FASTCOM/LPT-DP . . . . . $ 255.00

20mA Current Loop Interface

Model L20MA



Faxline Document #:1076

FEATURES

- Will Operate as 20mA or RS232
- High Performance 16550 UART
- Functions as COM1 Thru COM4
- SMART14 Software Included
- Shared Interrupts for Multiple Boards

ORDERING GUIDE

Model L20MA . . . . . $ 175.00

Free Technical Support

EXPRESS SOURCE-BOOK FAXLINE
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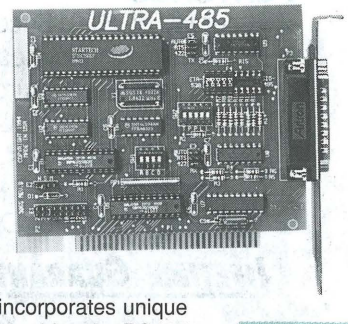
FAX

RS485/422 Adapter for Windows, OS/2, and DOS

Model ULTRA-485

Faxline Document #:1152



FEATURES

- Single Channel RS485/422 Adapter for Windows, Windows NT, OS/2, & DOS Communications
- Automatic Control of RS485 Driver Enable Signal
- Speeds to 115kbps
- Selectable Termination, Echo Mode, 2/4 Wire Operation
- No Special Drivers Required-Acts Like an RS232 Port to the System

The Model Ultra-485 incorporates unique hardware circuitry that enables the RS485 interface to appear to be an RS232 interface, requiring no additional software drivers. Previous RS485 interfaces required the software to "turn on" RTS to transmit and then "turn off" RTS at the end of the character. This required overhead and special interrupt processing. New operating systems such as Windows, Windows-NT, OS/2 and other multi-user operating systems typically will not allow the user access to the low level registers of the UART chip without writing a specialized driver or require significant overhead to accomplish this simple task. Low level RS485 driver maintenance is handled by the hardware on the ULTRA-485 rather than through software, therefore, initial development for RS232 communications can be effortlessly modified to RS485.

SPECIFICATIONS

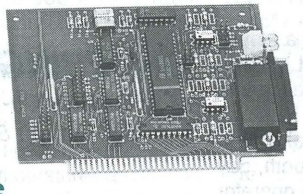
Communications Chip	16550 UART
Number of Ports	Single RS485/422
Max. Data Rate	115kbps
Max. Data Distance	Up to 5000ft.
RS-485 Operation	2 or 4 Wire
Pinout Configuration	EIA 530 DTE pinout on DB25P
Handshake	RTS, CTS, DCD, DSR, & DTR
Operating Temp.	0 to 50° C
Storage Temp.	20 to 70° C
Relative Humidity	0 to 90% RHNC
Power Requirements	+5V @ 160mA
MTBF	>150,000 Hrs
MTTR	<0.25 Hrs

ORDERING GUIDE

Model ULTRA-485 ..... ***$ 179.00***
Board, manual

Model RS422AT-P

Faxline Document #:1129



FEATURES

- RS422/485 Interface
- Selectable Address
- Two or Four Wire Operation
- Short Slot
- PC/XT/AT Compatible
- Max. Baud Rate 56k
- 0 to 60°C
- 16450 UART

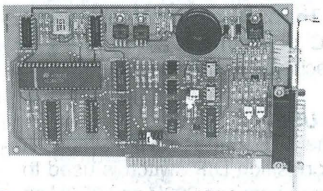
LIFETIME GUARANTEE!

ORDERING GUIDE

Model RS422AT-P ..... ***$ 129.00***
Board, Manual, Driver Software

Model RS422I-P

Faxline Document #:1128



FEATURES

- OPTICALLY ISOLATED Communications
- Distances to 5000 Feet
- RS422/485 With Half/Full Duplex Operation
- 16450 UART
- Compatible With PC/XT/AT & 386 Systems
- Half Card Length

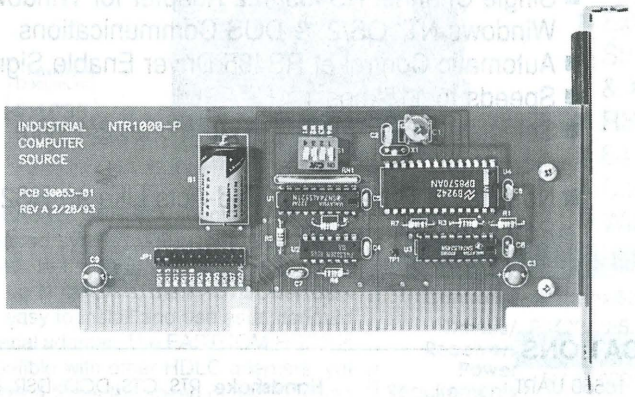
LIFETIME GUARANTEE!

ORDERING GUIDE

Model RS422I-P ..... ***$ 195.00***
Board, Manual, Driver Software

Network Time Reference Card
Accurate, Stable Real-Time Clock

Model NTR1000-P



FEATURES

- Accuracy of ±0.01Seconds
- Stability of ±5 Seconds/Month, Operating Temperature 0 to 50°C
- Auto-Update of DOS Clock from 1 Minute to 45.5 Days
- AT Interrupts
- Now Includes Novell Driver

LIFETIME GUARANTEE!

The NTR1000-P Network Time Reference card provides an inexpensive way to maintain very accurate time in your PC. The NTR1000-P has a stability of ±5 seconds per month, an improvement two orders of magnitude greater than the average DOS clock. Quite often the DOS clock is even further off than that. Many control, test and measurement applications require a more stable clock, but not the synchronization to WWV. The NTR1000-P fills that need.

The heart of the NTR1000-P is the National Semiconductor Real Time Clock IC, DP8570A, with battery backup power, and is referenced to a stable crystal with a known aging rate. The oscillator is adjustable under normal PC operating temperatures to provide precise and accurate reference.

EASY TO USE

Setup of the NTR1000-P is very simple. A single four position DIP switch is used to select address between 200H and 3E0H on 20H boundaries. An eleven position header is provided to select the IRQ level. The included device driver is installed via the CONFIG.SYS file and includes four parameters; PORT, VPDATMW, VPDATEHR and IRQ. The default port is 340H, the default IRQ is NONE (no periodic update), and the default update rate is 1 minute between updates. The update rate is specified in decimal (0 to 65535) and represents the number of minutes between periodic updates of the BIOS clock.

SETTING THE TIME

Once the driver is loaded, setting the time is no different than normal. When you set the time, the NTR1000-P's software sets its clock and then maintains stable time. Set how often you want the DOS clock updated and you're off and running.

NOVELL DRIVER INCLUDED

Included on the software disk is a Novell NetWare Loadable Module (NLM) that allows the NTR1000-P to be installed in a server on a Novell network. The NLM will work under NetWare 3.11, 3.12, and 4.xx. The driver requires setting the month, day and year as well as the time. The operator also selects the update rate in minutes (1-59) or hours (1-999). The driver can be loaded in the AUTOEXEC.NCF if you desire to have it autoboot when the server is turned on.

SPECIFICATIONS

Accuracy	±0.01 Seconds
Stability	±5 Sec/Month @ 25°C ± 1 Sec/°C
Aging Rate	<3ppm
Interrupt Levels	Extended AT Interrupts
Temperature Range	Operating, 0 to 50°C Storage, -10 to 70°C

ORDERING GUIDE

Model NTR1000-P . . . . . $ 199.00

Board, Manual, Software

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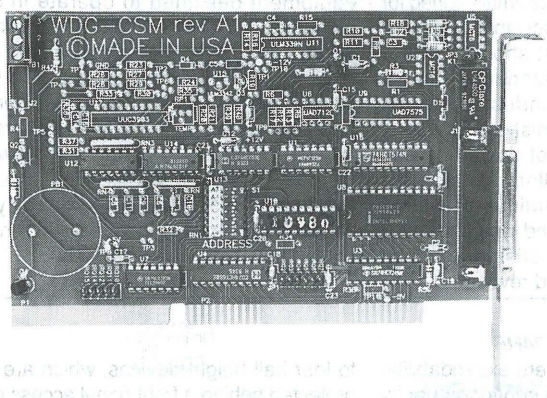
Multifunction Watchdog Timer Card

Model WDT500-P



FEATURES

- Software Selectable Timeout: 10µs to 4800s
- Relay Output & Reset Line Output
- Half-size, AT Compatible
- Optional Temperature Monitor/Alarm, Fan Speed Detect, & Buzzer Plus More! (WDT501-P)

Faxline Document #:1190

The newest member of the Watchdog Timer Family is the Model WDT500-P Series. The basic model, WDT500-P provides a software selectable time-out from 10 microseconds to 4800 seconds. In the event that your application program does not reset the card during that period, a relay output and/or a reset line output is available to reset the computer.

The Model WDT501-P adds several options to the card. The first is a voltage monitor. This monitor checks all four computer voltages to see if they have exceeded 7% of nominal. The next two are for temperature monitoring. The first temperature option is an alarm if the temperature exceeds 50° C. An adjustment is available to set the temperature either lower or higher. The next temperature option is an actual monitor. The temperature can be read to within -14° C. Another option is a buzzer that will sound if the watchdog times out. A fan speed detector is provided that will trigger if the fan tachometer output drops below 50Hz. Still another option provided is two isolated input lines that are tied to a change of state detector. If either of these lines changes, the state detector will generate an IRQ if desired. The last option is two isolated output lines that are connected to the reset output. They are of opposite polarity.

SOFTWARE

A software utility disk is provided to aid in installation as well as provide programming examples. The example programs are presented in QuickBASIC, C, and Pascal. Source code for each program is included. A utility is provided titled FINDBASE that aids in locating a free block of I/O space for the card. There is also a Windows DLL software provided for those users who wish to program in VisualBASIC.

SPECIFICATIONS

WATCHDOG TIMER

Time-Out	Selectable from 10µs to 4800s
Clock	894.88625kHz, derived from color clock (14.31818Mhz/16)
Relay Contact Rating	Max switching current 2A DC or AC, 30VA max

GENERAL

I/O Space	8 bytes
IRQ Selections	2-7, 10-12, 14, or 15
Power Required	WDT500-P: +5VDC @ 125mA WDT501-P: +5VDC @ 250mA

PHYSICAL

Temperature Range	Operating: 0 to 60°C Storage: -50 to +120°C
Relative Humidity	10 to 90% RHNC
Size	6.5" x 3.9" (165 x 99mm)
Connector Type	DB25 female

ORDERING GUIDE

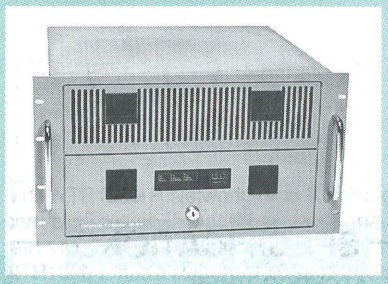
Model WDT500-P ..... ***$ 125.00***
Basic card, software, manual

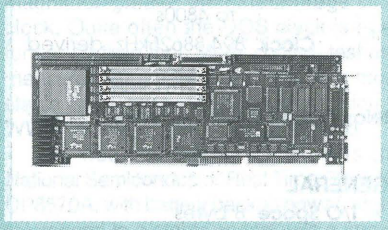
Model WDT501-P ..... ***$ 195.00***
Card w/ options, software, manual

Building Your Fault-Tolerant Network Server

Your network is a critical part of your company's infrastructure. And as part of that vital infrastructure, you know to shop and install network equipment that can be easily-upgraded, managed, and optimally-tuned for performance. You also know that whenever possible the equipment should feature rugged design and redundancy. That's because a number of industry studies confirm what most administrators already know: the annual cost of downtime can come to millions of dollars for a single company. Network downtime forces expensive network service and repair, and also creates indirect losses, arising from lost employee productivity and revenue.

To minimize and prevent these expensive outages, users have turned to network vendors with new requirements. Network vendors have responded by offering equipment designed to operate in demanding, mission-critical environments. And so, like the respected leaders in the network industry, Industrial Computer Source leveraged its decade of experience in designing and supplying industrial-grade personal computers to build the power-perfect network server. This recommended solution delivers the performance you expect and manages to virtually eliminate server downtime.





Tech Tip:

The EM964TP and the EM400 are 4-port Ethernet network cards that are perfect for server-intensive environments. You can even use the EM964TP or the EM400 in place of a Ethernet or Fast Ethernet hub – directly connecting your network devices to your server – saving you thousands of dollars and delivering uncompromised performance. Call our professional staff to find out how you can wire your 10BaseT and 100Base-TX network without using a hub.

CHASSIS

Recommended: *7520P-34HR*

The 7520P chassis delivers expendability, ruggedness, impressive cooling-capacity and a redundant, N+1 configuration, hot-swappable power supply option. The 7520 chassis is available in several configurations — with a mix of backplanes and power supplies. You can choose to have a mix of more PCI slots or fewer. The four cooling fans ensure trouble-free operation even in the most adverse of temperature conditions. The vibration-dampened drive bays hold up to four half-height devices, which are also protected behind a front panel access door. The door may be locked to secure the installed drives and otherwise prevent tampering, or unlocked for easy access. The front panel door includes LEDs indicating the system status - power supply status, power supply alarm (also an audible alarm), and disk drive activity.

See page 51 for a description, specifications, and other options.

CPU BOARD

Recommended: *SB586PV/133*

Manufactured by Industrial Computer Source, the Pentium processor board offers the latest chip set and advanced peripherals on a single board plug-in computer. Occupying the dedicated CPU slot, the board is essentially the complete system on a single-card, leaving 15 ISA expansion slots and two PCI expansion slots free. The system may be ordered with all expansion slots being ISA — leaving 19 individual slots available for your use. The CPU card has 64mA of ISA bus drive to support even the most fully-packed network configuration.

See page 55 for more information.

TRIPLE PROTECTION

Deltec Line Interactive UPS (See page 34)

The Deltec UPS line is the perfect complement to your configuraiton — giving you triple redundancy when used with the built-in power redundancy of the 7520 chassis.

NETWORK INTERFACE CARDS

Model EM964TP	4 port 10Mbps
Model EM400	4 port 100Mbps

See page 4.

NETWORK OPERATING SYSTEM

Novell NetWare, Microsoft Windows NT

See page 32. Pre-installation available, call for more information.

KEYBOARD

Recommended: 6531-KB3

101-key keyboard and slide-drawer assembly, 19" rack-mountable with lock.

NOTE: Our professional certified system engineers believe that these recommendations are suitable for most environments. However, we understand that you may have unique requirements of your own. Just give our engineers a call and we'll be pleased to recommend and build a custom network server to meet your specific requirements.

DRIVES

Model XP32150SW	Fast/Wide SCSI 2, 2 GB
Model XP34300SW	Fast/Wide SCSI 2, 4 GB (recommended)
Model ST2000I	2 GB DAT Tape Drive, SCSI
Model ST4000I	4 GB DAT Tape Drive, SCSI
Model FD-505	Combo 3.5 and 5.25 dual floppy drives
Model XM3601BS	Horizontal or Vertical mountable, quad-speed CD-ROM

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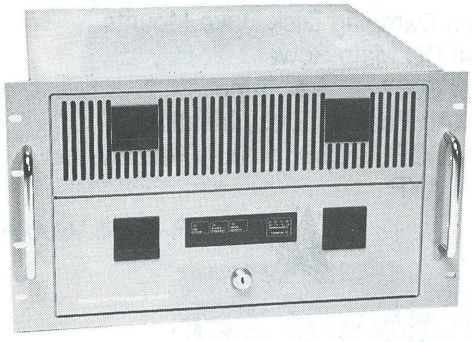
High Drive Capacity
20 Slot Rack Mount System Chassis

Model 7520-34H



Faxline Document #:1009

FEATURES

- 20 Slot Passive Backplane
- Up to 4 Half Height Disk Drives
- 300W Power Supply
- Optional 48VDC Input Mains
- Front Panel System Status Display
- UL Recognized
- Split Backplane Models Available
- New EISA & PCI Models Available
- Optional Redundant (N+1) Power Supplies

Made in USA

The 7520-34H is one of the newest models of 20 slot chassis available from Industrial Computer Source. The 7520-34H has been designed to take best advantage of the 20 slot passive backplane architecture used in prior models.

SPLIT BACKPLANE MODELS

The 7520-34H chassis is also available in special models that incorporate additional circuitry to permit "splitting" the backplane into as many as five sections.

REDUNDANT POWER SUPPLIES

The 7520-34H chassis may also be ordered with an optional redundant power supply feature. In this configuration the chassis includes two separate 300W power supplies in a N+1 configuration.

SPECIFICATIONS

Backplane Passive

Bus Architecture ISA, EISA, or PCI

Number of Slots ISA- 20 Full Length
EISA- 15 Full Length EISA
5 Full Length ISA
PCI-16 Full Length ISA 2
Full Length PCI 1
Dedicated CPU Slot

Split Backplanes 2 x 10 Slot in
Model 7522-34H
4 x 5 Slot in
Model 7524-34H
Other Configurations
Available

POWER SUPPLY

AC Input 90-130/180-265 Input,
47-63Hz, Switch
Selected
300W Ouput
+5VDC @ 30A
+12VDC @ 12A
-5VDC @ 0.5A
-12VDC @ 0.5A

AC Input (cont.) Redundant Supplies
300W Output Each
N+1 Automatic
Hot Swappable
Alarm Signal on Failure

DC Input Optional 48VDC Power
Input 350W Output
+5VDC @ 50A
+12VDC @ 8A
-5VDC @ 2A
-12VDC @ 4A

OPERATING ENVIRONMENT

Temperature 0 to +50°C

Humidity 8 to 80% RHNC

Altitude -300 to 20,000ft

Vibration 1.5G, 3 Axis Vibration

Shock 10G, 3 Axis Shock

ORDERING GUIDE

Model 7520-34H . . . . . $ 1995.00
20 Slot Chassis, 300W, AC Input Power

Model 7520-34H-DC48 $ 2995.00
20 Slot Chassis, 350W, DC Input Power

Model 7520E-34H . . . . . $ 2475.00
15 EISA, 5 ISA Slot Backplane, 300W, AC Input Power

Model 7520P-34H . . . . . $ 2445.00
16 ISA, 2 PCI Slot Backplane, 300W, AC Input Power

SPLIT BACKPLANE MODELS

Model 7522-34H . . . . . $ 2295.00
All features of basic chassis with ISA back-plane split into 2 sections of 10 slots each.

Model 7524-34H . . . . . $ 2295.00
All features of basic chassis with ISA backplane split into 4 sections of 5 slots each.

REDUNDANT POWER SUPPLY MODELS

Model 7520-34HR . . . . . $ 2995.00
20 Slot Chassis, 300W, AC Input Power, Redundant Power Supplies

Model 7520E-34HR . . . . $ 3475.00
15 EISA, 5 ISA Slot Backplane, 300W, AC Input Power, Redundant Power Supplies

Model 7520P-34HR . . . . $ 3445.00
16 ISA, 2 PCI Slot Backplane, 300W, AC Input Power, Redundant Power Supplies

Model 4-700062-0 . . . . $ 199.00
Spare Module for Model 752x-34HR Series Chassis & Redundant Supplies.

SPLIT BACKPLANES/ REDUNDANT POWER SUPPLY MODELS

Model 7522-34HR . . . . . $ 3295.00
20 Slot ISA Backplane split into 2 sections of 10 slots each. Individual Keyboard & Reset Connections. 300W Redundant Power Supply

Model 7524-34HR . . . . . $ 3295.00
20 Slot ISA Backplane split into 4 sections of 5 slots each. Individual Keyboard & Reset Connections. 300W Redundant Power Supply

10 & 15 Slot
Rack Mount System Chassis

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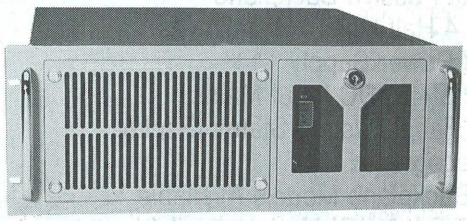
Model 7415-23V



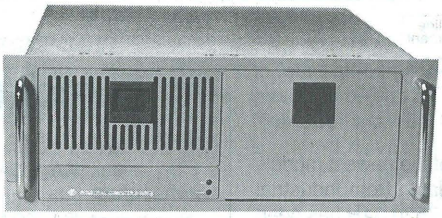
Faxline Document #:1010

FEATURES

- ISA, EISA & ISA/PCI Passive Backplanes
- Vibration Damping Disk Drive Mounts
- Optional DC Main Power
- 250W or 300W Power Supplies
- Filtered Air Positive Pressurization
- Choice of CPU's-386 through Pentium or Alpha AXP

Made in USA

Model 7310-24V



Faxline Document #:1201

Rack mount system chassis for passive backplane single board computer or motherboard systems. These chassis provide the filtered cooling air needed by today's high performance systems as well as the convenience of easily serviced backplanes or easily accessible motherboards. A full line of other models are available from 6 through 20 expansion slots per rack, or shelf mounting.

CHASSIS & CPUs

ORDERING GUIDE

15 SLOT MODELS

Model 7415-23V . . . . . $ 1229.00
Chassis, 250W power supply, 15 slot backplane

Model 7415-33V . . . . . $ 1329.00
Chassis, 300W power supply, 15 slot backplane

Model 7415P-23V $1649.00
Chassis, 250W power supply, 11 ISA, 2 PCI slot backplane

Model 7415E-23V . . . . . $ 1689.00
Chassis, 250W power supply, 15 slot EISA backplane

Model 7415P-33V . . . . . $ 1749.00
Chassis, 300W power supply, 11 ISA, 2 PCI slot backplane

Model 7415E-33V . . . . . $ 1789.00
Chassis, 300W power supply, 15 slot EISA backplane

Model 7415-23V-DC12 $ 1629.00
12VDC in, 100W power supply

Model 7415-23V-DC24 $ 1629.00
24VDC in, 240W power supply

Model 7415-23V-DC48 $ 1629.00
+48VDC or -48VDC in, 300W supply

10 SLOT MODELS

Model 7310-24V . . . . . $ 899.00
System Chassis, 10 Slot ISA Backplane, 250W Supply

Model 7310-34V . . . . . $ 999.00
System Chassis, 10 Slot ISA Backplane, 300W Supply

Model 7310-24V-DC2 . $ 1299.00
System Chassis, 10 Slot ISA Backplane, 24VDC Input, 240W Supply

Model 7310-24V-DC4 . $ 1299.00
System Chassis, 10 Slot ISA Backplane, 48VDC Input, 300W Supply

Model 7310E-24V . . . . . $ 1219.00
System Chassis, 10 Slot EISA Backplane, 250W Supply

Model 7310E-34V . . . . . $ 1319.00
System Chassis, 10 Slot EISA Backplane, 300W Supply

Model 7310E-24V-DC2 $ 1619.00
System Chassis, 10 Slot EISA Backplane, 24VDC Input, 240W Supply

Model 7310E-24V-DC4 $ 1619.00
System Chassis, 10 Slot EISA Backplane, 48VDC Input, 300W Supply

Model 7310P-24V . . . . . $ 1259.00
System Chassis, 6 ISA/2 PCI Slot Backplane, 250W Supply

Model 7310P-34V . . . . . $ 1359.00
System Chassis, 6 ISA/2 PCI Slot Backplane, 300W Supply

Model 7310P-24V-DC2 $ 1659.00
System Chassis, 6 ISA/2 PCI Slot Backplane, 24VDC Input, 240W Supply

Model 7310P-24V-DC4 $ 1659.00
System Chassis, 6 ISA/2 PCI Slot Backplane, 48VDC Input, 300W Supply

Model 7308-24V . . . . . $ 699.00
System Chassis, Motherboard Mounting Kit, 250W Supply

Model 7308-34V . . . . . $ 799.00
System Chassis, Motherboard Mounting Kit, 300W Supply

Model 7308-24V-DC2 . $ 1099.00
System Chassis, Motherboard Mounting Kit, 24VDC Input, 240W Supply

Model 7308-24V-DC4 . $ 1099.00
System Chassis, Motherboard Mounting Kit, 48VDC Input, 300W Supply

MOTHERBOARD MOUNTING MODELS

Model 7408-23V . . . . . $ 1029.00
Chassis, 250W power supply, mount location for motherboard CPUs.

Model 7408-23V-DC12 $ 1429.00
12VDC in, 100W power supply

Model 7408-23V-DC24 $ 1429.00
24VDC in, 240W power supply

Model 7408-23V-DC48 $ 1429.00
+48VDC or -48VDC in, 300W supply

Model 7415-FAN . . . . . $ 65.00
Optional 2nd 106CFM cooling fan

Model 7500-RMK . . . . . $ 75.00
Chassis slides for 24" to 30" cabinets

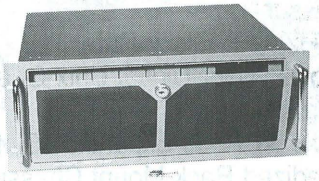
Model 7500-RMK18 . . . $ 75.00
Chassis slides for 18" to 24" cabinets

Call For Your Custom/Special Requirements

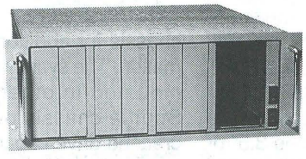
Rack Mount Accessories

Rack Mount Drive Bays

Model 6531-RMDBD



Model 6531-RMDB



FEATURES

- Dual 150W Power Supplies
- 60CFM Filtered Input Cooling Fan
- Up to 4 Full Height Devices or 8 Half Height Devices
- Drives Easily Installed/Removed
- Internal SCSI Cable Provided

Made in USA

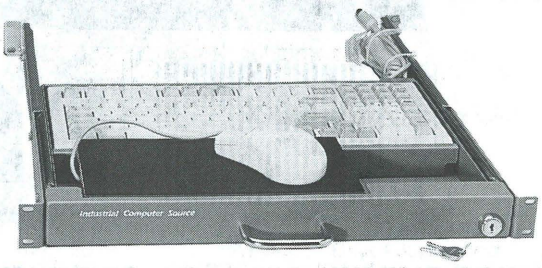
ORDERING GUIDE

Model 6531-RMDB ..... **$ 695.00**
Drive Bay, Power Supplies, Cooling Fan

Model 6531-RMDBD ..... **$ 895.00**
Drive Bay with Locking Door, Power Supplies, Cooling Fan

Rack Mounted Keyboard

Model 6531-KB3M



FEATURES

- Rack Mount 1.75" High
- 101-Key AT Keyboard
- Mouse Pad & Storage Compartment
- Fits 22" to 30" Deep Cabinets
- Available Without Mouse Pad & Storage Compartment

ORDERING GUIDE

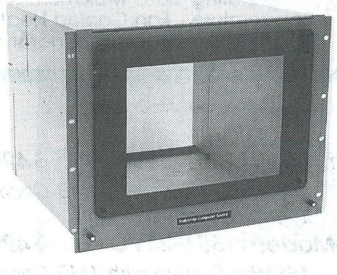
Model 6531-KB3M ..... **$ 375.00**
Keyboard and slide assembly, Mouse not included

ACCESSORY

Model KB3/A-SKIN ..... **$ 30.00**
Protective overlay film for keyboard

Rack Mount Monitor Kits for Monitors up to 17"

Model 6531-UM



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FEATURES

- Rack Mount for Most 12" to 17" Monitors
- Easy Installation
- Protective Lexan Face Plate
- Easy Access to Monitor
- Pre-Assembled or Knocked Down Kit Form

Model 6531-UMM

DIMENSIONS

EXTERNAL (H x D x W)

6531-UM	14" x 18.75" x 19" (356 x 476 x 483mm)
6531-UMM(K)	17.5" x 19.2" x 19" (445 x 488 x 483mm)
6531-ULM(K)	19.2" x 22.1" x 19" (488 x 561 x 483mm)

INTERNAL (H x D x W)

6531-UM	13.75" x 17.75" x 16.75" (349 x 451 x 426mm)
6531-UMM(K)	16.5" x 18.2" x 16.7" (419 x 462 x 424mm)
6531-ULM(K)	18.7" x 21" x 16.7" (475 x 533 x 424mm)

ORDERING GUIDE

Model 6531-UM ..... **$ 329.00**
Universal monitor mount, monitors to 14"

Model 6531-UMK ..... **$ 259.00**
Kit form, monitors to 14"

Model 6531-UMM ..... **$ 379.00**
Universal monitor mount, monitors up to 15"

Model 6531-UMMK .... **$ 299.00**
Kit form, monitors up to 15"

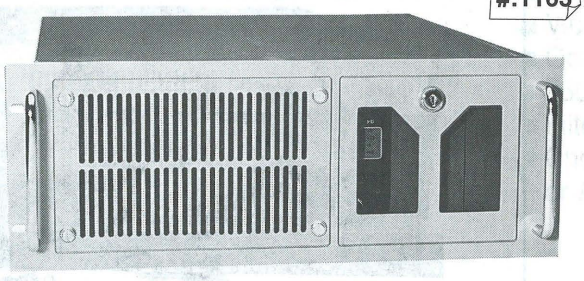
Model 6531-ULM ..... **$ 399.00**
Universal monitor mount, monitors up to 17"

Model 6531-ULMK .... **$ 319.00**
Kit form, monitors up to 17"

ALPHA AXP™ RISC System

Model 11500-23VN

Faxline Document #:1163



FEATURES

- Digital Equipment Corp. Alpha AXP Processor
- 166MHz CPU Clock Rate
- Windows NT or Digital Unix Operating Systems
- ISA and PCI Bus Expansion Slots
- Ruggedized Rack Mount Chassis

These systems are based on the DEC chip 21066-AA Alpha AXP, 64bit, RISC microprocessor known for its performance in floating point and graphical operation applications. With a choice of operating systems that opens up the world of Windows compatibility or of UNIX compatibility, these systems answer your high performance needs. The Alpha AXP processor itself operates at 166Mhz and is upgradable to future releases at 33Mhz multiples.

Here is an opportunity to use your existing ISA compatible feature cards, new PCI feature cards and Windows NT applications to speed up existing applications or create high performance new applications.

These systems are basic building blocks for a full high performance system you configure to suit your application requirements. There are two ways to order - either for Windows NT or for DEC UNIX. The firmware is different on the two versions. To load the operating systems requires a CD-ROM in either case. Once a DEC UNIX system has been setup with the Server Extension, other systems may have their operating systems installed over the LAN.

The system board includes all the standard features required of most systems as well as some advanced features such as PCI Bus expansion slots. Under Windows NT, both FAST SCSI-2 and IDE disk controllers are resident and supported on the motherboard. Under DEC UNIX, the IDE disk controller is not used or supported. The on-board floppy disk controller accepts all current high-density, capacities of floppy disk drives from 1.2MB to 2.88MB in the NT version and both 1.44MB and 2.88MB 3.5" drives in the DEC UNIX configuration. The system chassis will hold up to three 3.5" or 5.25" devices in addition to the 3.5" high density floppy drive. Refer to the 7408-23V chassis for additional drive capacity information. The system board may be optionally mounted in other Industrial Computer Source chassis on special order for increased drive capacities, additional cooling capacity requirements or other than rack mounting configurations.

SPECIFICATIONS

Processor	DECchip 21066-AA Alpha AXP Microprocessor
Clock Rate	CPU - 166Mhz ISA Bus - 8.33Mhz PCI Bus - 33Mhz
Processor Upgradeable	ZIF for Future Alpha AXP Chips in 33Mhz Multiples
Floating Point Format	IEEE and VAX (F and G)
Memory	8MB Minimum, ECC Corrected 256MB Maximum, ECC Corrected
SIMMs	2 Banks, 2 Sockets per Bank 72 pin SIMMs, 36-bit 70nS or Faster SIMMs Required
Cache Memory	256K or 1MB External Cache Options
Expansion Slot	5 ISA, 1 Location Shared with PCI 3PCI, 1 Location Shared with ISA Limited Length For Feature Cards Varies with Location
Dimensions	Baby AT Size and Hole Pattern 8.66" x 13.0" (220 x 330 mm) 5.57" (142 mm) Highest Point
MTBF	361,000 P.O.H. @ 25°C 173,600 P.O.H. @ 40°C
Operating Temperature	55°C Maximum with Fan Cooled Heat Sink (included, not shown)

ORDERING GUIDE

Model 11500-23VN.... $3995.00
166Mhz System with 256K Cache, 1.44MB Floppy

Model 11500-23VO ... $4695.00
166Mhz System with 256K Cache, DEC OSF/1, 2-user License, 1.44MB Floppy. Operating System Media and Documentation Must be Ordered Separately. (Although a C Compiler is included with the operating system, the Developer's Extension must be purchased for use of the debugger.)

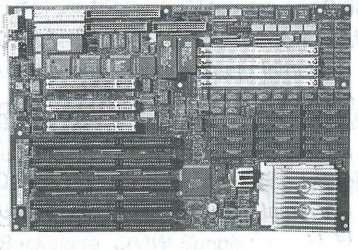
Model 11500-23VOF .. $4995.00
166Mhz System with 256K Cache, DEC OSF/1, 2-user License, Developer's Extension License, Server Extensions License, 1.44MB Floppy. Operating System Media and Documentation Must be Ordered Separately.

Model 11501-23VN.... $4295.00
166Mhz System with 1MB Cache, 1.44MB Floppy

Model 11501-23VO ... $4995.00
166Mhz System with 1MB Cache, DEC OSF/1, 2-user License, 1.44MB Floppy. Operating System Media and Documentation Must be Ordered Separately.

Model 11501-23VOF .. $5295.00
166Mhz System with 1MB Cache, DEC OSF/1, 2-user License, Developer's Extension License, Server Extensions License, 1.44MB Floppy. Operating System Media and Documentation Must be Ordered Separately.

ALPHA RISC Motherboard



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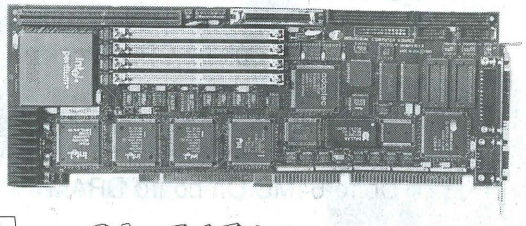
NEPTUNE 586 Single Board CPU

Model SB586PV Series



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NEW!

The Neptune II Pentium series CPUs provide full PCI bus support conforming to the PICMG standards. It is also capable of being installed into an ISA passive backplane without PCI expansion as a method for upgrading an older, slower system. Two basic models are available – one with an on-board PCI bus SVGA video adpater and one without.

FEATURES

- Intel Neptune II Chip Set
- Pentium 90MHz through 133MHz Processors Supported
- On-Board PCI Disk Controllers
- Fast and Fast /Wide SCSI Support
- On-board SVGA PCI Video Controller Option
- Upgradeable Modular Cache Memory
- DEC PCI to PCI Bridge Support

SPECIFICATIONS

Processors Supported	Pentium 90, 100, 120 or 133MHz
Processor Clock Rate	60MHz External - 90, 120MHz Internal 66MHz External - 100, 133MHz Internal
Chip Set	Intel Neptune II
BIOS	AMI WinBIOS
Memory Capacity	192MB Maximum, Fast Page Mode, 64 bits
EIDE Disk Controller	2 Drives Supported, PCI Bus.
SCSI-2 Disk Controller	Adaptec SCSI-2 7870, PCI Bus, Fast/Wide
Video Controller (Optional)	Cirrus Logic GD543X To 1280 X 1024NI

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NON-VIDEO MODELS

Model SB586P/133 ..... ***$3259.00***
Pentium 133MHz Processor, 0K Cache, No SVGA, Serial Port Cable

Model SB586P/120 ..... ***$2889.00***
Pentium 120MHz Processor, 0K Cache, No SVGA, Serial Port Cable

Model SB586P/100 ..... ***$2449.00***
Pentium 100MHz Processor, 0K Cache, No SVGA, Serial Port Cable

Model SB586P/90 ..... ***$2119.00***
Pentium 90MHz Processor, 0K Cache, No SVGA, Serial Port Cable

VIDEO MODELS

Model SB586PV/133 ..... ***$3459.00***
Pentium 133MHz Processor, 0K Cache, SVGA Video, Serial Port Cable

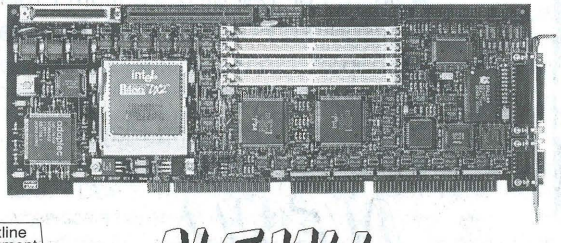
Model SB586PV/120 ..... ***$3099.00***
Pentium 120MHz Processor, 0K Cache, SVGA Video, Serial Port Cable

Model SB586PV/100 ..... ***$2899.00***
Pentium 100MHz Processor, 0K Cache, SVGA Video, Serial Port Cable

Model SB586PV/90 ..... ***$2319.00***
Pentium 90MHz Processor, 0K Cache, SVGA Video, Serial Port Cable

ARIES 486 Single Board CPU

Model SB4864P Series



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NEW!

FEATURES

- Intel Aries Chip Set
- 486SX through 486DX4 Processors Supported
- On-Board PCI Disk Controllers
- Fast and Fast/ Wide SCSI Support
- Upgradable Modular Cache Memory
- 64mA ISA Bus Drive Current
- DEC PCI to PCI Bridge Support

ORDERING GUIDE

Model SB4864P/100 . . . ***$1559.00***
80486DX4/100 Processor, 0K Cache, Serial Port Cable

Model SB4862P/66 . . . . ***$1469.00***
80486DX2/66 Processor, 0K Cache, Serial Port Cable

Model SB486XP/33 . . . . ***$1349.00***
80486SX/33 Processor, 0K Cache, Serial Port Cable

SPECIFICATIONS

Processors Supported	80486SX, 80486DX, 80486DX2, 80486DX4, Pentium Overdrive (P24T)
Processor Clock Rate	33MHz External, 33/66MHz (DX2), 33/100MHz (DX4), and 33/84MHz (P24T)
Chip Set	Intel Aries
BIOS	AMI WinBIOS
Memory Capacity	128MB Maximum, Fast Page Mode, 32 bits
EIDE Disk Controller	2 Drives Supported, PCI Bus
SCSI-2 Disk Controller	Adaptec SCSI-2 7870, PCI Bus, Fast/Wide

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PCI Performance for ISA Bus Systems
Full Featured CPU PCI Video & EIDE

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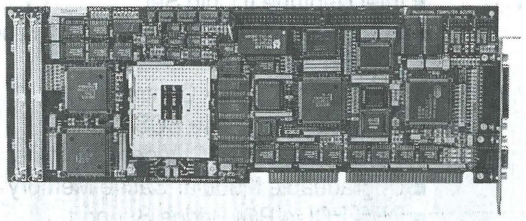
Model SB486PV Series



FEATURES

- 80486SX Through P24T Processors
- 33Mhz to 100Mhz CPU Clocks
- On-board PCI Bus EIDE
- SVGA Video & Non-Video Models
- 128K or 512K External Cache RAM
- Up to 64MB On-board DRAM

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NEW!

Made in USA

Now Available in Non-Video Version!

SPECIFICATIONS

Processors Supported	80486SX, 80486SX2, 80486DX, 80486DX2, 80486DX4 and P24T in a ZIF Socket
Processor Clock Rate	25Mhz, 33Mhz, 25/50Mhz, 33/66Mhz, 25/75Mhz, 33/100Mhz and 63Mhz(P24T)
Chip Set	Intel Saturn-2 Chip Set
BIOS	AMI WinBIOS
Memory Capacity	4MB to 64MB Maximum, 32 bits
EIDE Disk Controller	2 Drives Supported, PCI Bus
Video Controller (Optional)	Cirrus Logic GD543X To 1024 x 768NI

XXCAL CERTIFIED

ORDERING GUIDE

Model SB4864PV5/100 . $1749.00
80486DX4, 100Mhz CPU, 512K Cache RAM, Serial Port Connectors

Model SB4864PV/100 . . $1599.00
80486DX4, 100Mhz CPU, 128K Cache RAM, Serial Port Connectors

Model SB4864PVN/100 $1449.00
80486DX4, 100Mhz CPU, 128K Cache RAM, Serial Port Connectors, No SVGA

Model SB4862PV5/66 . . $1665.00
80486DX2, 66Mhz CPU, 512K Cache RAM, Serial Port Connectors

Model SB4862PV/66 . . . $1515.00
80486DX2, 66Mhz CPU, 128K Cache RAM, Serial Port Connectors

Model SB4862PVN/66 . $1365.00
80486DX2, 66Mhz CPU, 128K Cache RAM, Serial Port Connectors, No SVGA

Model SB486XPV5/33 . . $ 1545.00
80486SX, 33Mhz CPU, 512K Cache RAM, Serial Port Connectors

Model SB486XPV/33 . . . $ 1395.00
80486SX, 33Mhz CPU, 128K Cache RAM, Serial Port Connectors

Model SB486XPVN/33 . $ 1245.00
80486SX, 33Mhz CPU, 128K Cache RAM, Serial Port Connectors, No SVGA

CHASSIS & CPUs

Pentium PC Motherboards

Model 586MBTPCI Series

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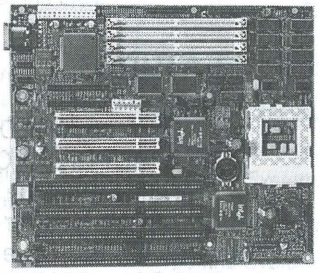

FEATURES

- 90,100 or 120 MHz Pentium Processor
- Integrated PCI EIDE, with Bus Mastering Support
- PCI Local Bus
- Completely Plug and Play
- Small Footprint

NEW!

ORDERING GUIDE

Model 586MBT133PCI. . $ 1669.00
System board, 133MHz Pentium, 256K Cache

Model 586MBT120PCI. . $ 1439.00
System board, 120MHz Pentium, 256K Cache

Model 586MBT100PCI. . $ 1119.00
System board, 100MHz Pentium, 256K Cache

Model 586MBT90PCI. . . $ 919.00
System board, 90MHz Pentium, 256K Cache

SPECIFICATIONS

Processor Supported	Intel Pentium
Processor Clock Rate	90Mhz, 100Mhz or 120MHz
Chipset	Intel Triton
BIOS	Flash AMIBIOS
Memory Capacity	128MB Maximum
EIDE Disk Controller	4 Drive Supported, PCI Bus (Intel Triton PIIX)
Floppy Controller	2 Drives to 2.88M Supported
Expansion Slots	3 Dedicated ISA Slots 2 Dedicated PCI Slots 1 Shared Slot, ISA Or PCI

See our Master Source-Book™ for Additional Models

Product Highlights

Lattis System 2000 . . . p 6

SYNOPTICS (BAY NETWORKS)

The Lattis System 2000 stackable Ethernet hubs offers not only the high-quality of an industry leader, but at a plug-and-play price. Because these hubs are stackable and upgradable, users can start with a 16-port unmanaged hub and grow the cluster to a 80-port managed hub simply by adding a hub and connecting an expansion cable. Fully compatible with Synoptics System 3000 and 5000 powerful concentrators series, these hubs offer a lower-cost entry into networking. Each hub fits in a single rack-unit, and each cluster counts as a single repeater — for maximum flexibility in a growing environment. Each hub comes with LEDs that indicate power, packet reception, collisions, partition and link status, and can be easily managed alongside other Synoptics products with SNMP and RMON support.

NX-8F . . . . . p 15

ROCKWELL

Fiber Distributed Data Interface (FDDI) networks provide the most reliable, robust connectivity for today's LAN and Metropolitan Area Network (MAN). With a data rate transfer of a 100Mbps and fiber-optic infrastructure, FDDI is well-suited for medium to large-scale networks. In addition to its high-bandwidth, FDDI is synchronous — which means that each station on the network is given equal and sequential access — making it ideal for bandwidth-intensive environments, such as CAD/CAM and other graphic applications. Recommended in combination with Rockwell's FDDI cards, the 8-port NetExpander FDDI Concentrator is especially well-suited for factory environments which may have a high EMI/RFI field. For troubleshooting and diagnostics, this concentrator offers full SMT support, SNMP (MIB II), and an external RS-232C port for diagnostics.

20-Slot Rack Mount System Chassis

7520-34H . . . . . p 51

INDUSTRIAL COMPUTER SOURCE

The 7520 series chassis offer up to 20 expansion slots for I/O intensive systems. Passive backplanes may be augmented by redundant, hot swappable power supplies. The system is well cooled by four filtered intake fans for reliability. The backplane my be split for redundant systems. Whether your application calls for numerous multi-port serial, T1, or network interface cards, the 7520 series will hold your application.

DS100I-PAK-1A . . . . . p 26

DYNATECH COMMUNICATIONS

The DynaStar 100/100I represents a new class of robust internetworking products which integrates the technology required to operate in today's LAN/WAN environment. These compact remote access concentrators, also called "edge" brouters (because they often reside on the edge of a branch LAN office), offer more than simple, plug-and-play LAN/WAN connectivity. In addition to use in a branch office LAN, these products also function in wide area networks which are connected to enterprise backbones. The DynaStar product line integrates key features like LAN routing/bridging, remote access (dial-in/out), terminal-to-host communications and more. The DynaStar 100/100I comes in a variety of custom, low-cost configurations, which can include simultaneous support for Frame Relay, ISDN, X.25, leased lines and even ATM (1.544 Mbits/s) — all in a single, easy-to-maintain unit.

Model BN-100 . . . . . p 11

BAY NETWORKS

The Bay Networks 100Base-T Fast Ethernet Stackable Hubs deliver safe, proven, industry-standard 100 megabit-per-second (Mbps) connectivity for power workgroups and other highly-demanding network environments. The 100Base-T hubs are preconfigured with 12 RJ-45 modular receptacles supporting the IEEE 802.3u 100Base-TX specification over two-pair Category 5 unshielded twisted pair cabling. The hubs combine the most desirable attributes of both modular and stackable hubs, providing a low-cost, high-performance solution that easily supports today's increasingly-powerful PCs and servers. By delivering full 100 Mbps throughput, the 100Base-T hubs dramatically reduce network bottlenecks and increase response times tenfold over traditional 10 Mbps shared-media Ethernet networks. New hubs can be added to the stack as needed, providing an incremental growth path that doesn't demand a substantial up-front investment. An automatic termination and bypass feature enables the hubs to detect the top and bottom of the stack and apply the appropriate termination to the bus, providing an efficient and cost-effective solution for growing network environments. Stack connections are made via cascade connectors on the back of each unit using optional expansion cables.

Recommended Print Server

AXIS150/152 . . . . . p 30

AXIS

Multi-protocol Ethernet Print Server for Workgroups, with support for either 10Base-T or 10Base-2 Ethernet and all popular operating systems, such as Windows, Windows 95, Netware and more..

Corporate Headquarters

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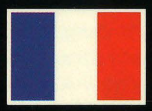

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